



## Town of North Providence

### Bid Specifications

### Brook and Winona Street Area Flood Improvement Project

Bids will be received at the Office of the Purchasing Agent, 2000 Smith Street, North Providence, Rhode Island, ground floor, until 9:45 a.m. on August 25, 2016. Bids will be opened at 10:00 a.m. that day.

Bids must be sealed and plainly marked on the outside of the envelope what is being bid upon.

The Purchasing Board reserves the right to reject any and all bids, to waive any informalities in the bids received and to accept the bid deemed most favorable to the interest of the Town.

Mandatory pre-bid meeting at Winona Street, North Providence, RI, August 15, 2016 on starting promptly at 10:00 a.m. local time.

## INFORMATION FOR BIDDERS

### 1. Receipt and Opening of Proposals:

Sealed proposals (bids) will be accepted in the office of the Purchasing Agent, Town Hall, 2000 Smith Street, North Providence, R. I. until the time indicated in the Invitation for Bids, for the materials designated in the Specifications and will then be publicly opened and read. No bids received thereafter will be considered.

### 2. Form of Bid:

Proposals must be submitted on and in accordance with the bid proposal form included hereto, blank places must be filled in as noted, no change shall be made in the phraseology or in the item or items mentioned therein, must contain the name and proper address of the bidding firm, and must be signed by a responsible member of the firm with his signature and official title. Proposals which are not complete, or contain any omissions, erasures, alterations, addition or contain irregularities of any kind, may be rejected as informal.

### 3. Submission of Bids:

(a) Envelopes containing bids must be sealed and addressed to the office of the Purchasing Agent, and must be marked with the name and address of bidder, date and hour of bid opening, and name of item in bid call.

(b) The Purchasing Agent will decide when the specified time has arrived to open bids, and no bid received thereafter will be considered.

(c) Any bidder may withdraw his bid by written request at any time prior to the advertised time for opening. Facsimile bids, amendments, or withdrawals will not be accepted.

(d) No bid may be withdrawn for a period of ninety (90) days from the date and time of opening.

(e) Negligence on the part of the bidder in preparing the bid confers no rights for the withdrawal of the bid after it has been opened.

(f) Proposals received prior to the time of opening will be securely kept, unopened. No responsibility will be attached to an officer or person for the premature opening of a proposal not properly addressed and identified.

(g) Two (2) copies of all documentation submitted and an electronic copy submitted either on CD or USB flash drive in pdf.

(h) Bidders must submit a bidder information form to the North Providence Office of the Purchasing Agent upon receipt of specifications.

4. Acceptance or Rejection of Bid Proposal:

The Town reserves the right to award the bid by item and further reserves the right to reject any and all proposals or parts thereof, to waive any informality in the proposals received and to accept the proposal, or parts thereof, which it deems to be most favorable to the best interest of the Town.

5. Qualifications of Bidder:

The Town may make such investigations as it deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Town all such information and data for this purpose as the Town may request. The Town reserves the right to reject any bid if the evidence submitted by, or investigation of such bidder fails to satisfy the Town that such bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein.

6. Commencement and Term of Contract:

The successful bidder shall commence the work upon Bid award. Contractor will have thirty days to begin work. Work must be completed November 30, 2016. This is a one year contract.

7. Bid Prices:

Bidders shall state the proposed bid prices in the manner as designated in the Bid Proposal. In the event there is a discrepancy between the price written in words and in figures, the prices written in words shall govern.

8. Indemnification:

The Contractor shall hold harmless, defend, and indemnify the Town and its officers, agents, and employees against all claims, demands, actions, and suits (including all attorney fees and costs) brought against any of them arising from the Contractor's work or any subcontractor's work under the contract.

9. Insurance:

The Contractor shall carry the insurance at his own expense:

a) General: All insurance for this contract shall be written by company (or companies) acceptable to the Town and all policies or certificates shall be submitted to the Town for examination prior to commencement of operations by the Contractor. In the event any policy or certificate, the amount of the insurance, or the company writing same are not satisfactory to the Town, the Contractor shall secure other policies or certificates in form and amount and with a company satisfactory to the Town. The Contractor shall not permit policies to be changed, cancelled, or to lapse and all policies shall include a clause to the effect that the policy shall not be subject to cancellation or a reduction in the limits of liability or amounts of insurance until notice has been sent by certified mail to the Town stating when, (not less than thirty (30) days thereafter) such cancellation or reduction shall be effective. All certificates of insurance shall be delivered to the Town contain true transcripts from the policy or policies, authenticated by the proper officer of the insurer evidencing in particular those insured, the extent of the insurance, the location and operations to which the insurance applies, the expiration date and the above-mentioned notice of cancellation clause and including the Town as an additional insured as to the operations involved.

If any part of the contract is sublet, similar insurance shall be provided by or in behalf of the subcontractors to cover their operations. The Contractor shall be charged with the responsibility for insurance protection for all their subcontract operations and should the contractor's policy not cover each and every subcontractor, certificates of insurance acceptable to the Town covering each and every subcontractor shall be filed with said Town prior to the commencement of subcontract operations.

(b) Workers' Compensation Insurance: The Contractor shall obtain workers, compensation insurance coverage for all of its workers, employees and subcontractors either as a carrier-insured employer or a self-insured employer, as provided by State of Rhode Island Statutes. The Contractor shall maintain worker's compensation insurance coverage for the duration of the contract.

In the event the Contractor's worker' compensation insurance coverage expires during the term of the contract, the Contractor shall renew said insurance, either as a carrier-insured employer or a self-insured employer, before its expiration, and the Contractor shall provide the Town with further certification of workers, compensation insurance as renewals of said insurance occur.

(c) Comprehensive General Liability and Property Damage Insurance including Contractual Liability: The Contractor shall maintain general liability and property damage insurance that protects the Contractor and the Town and its officers, agents, and employees from any and all claims, demands, actions, and suits for damage to property or personal injury, including death, arising from the Contractor's work under the contract.

- (1) Bodily injury including accidental death-each person \$1,000,000.
- (2) Bodily injury including accidental death-each occurrence \$1,000,000.
- (3) Property Damage - each occurrence \$1,000,000.
- (4) Property Damage - aggregate during any twelve (12) months period \$1,000,000.
- (5) Comprehensive Contractor's Protective Liability, same coverage as in paragraphs (i - 5) above.
- (6) Contractor maintain during the extent of this agreement, Builders Risk Insurance with extended coverage in an amount not less than the full insurable insurable value of work. Any loss payments will made payable to the Town of North Providence and the Contractor.
- (7) Operations - premises Liability
- (8) Independent Contractor's/Town's Protective Liability
- (9) Completed Operations and products Liability
- (10) Contractual Liability

(d) Comprehensive Automobile Liability: covering all vehicles used by the Contractor in the course of the work including owned, non-owned and hired.

- (1) Bodily injury including accidental death each person \$1,000,000.

- (2) Bodily injury including accidental death-each occurrence \$1,000,000.
- (3) Property Damage - each occurrence \$1,000,000.

10. Wages and Labor:

The Contractor shall comply with the applicable provisions of Title 37, Chapter 13, as amended, General Laws of Rhode Island (1977 Reenactment).

ii. Safety and Health Regulations:

All work contemplated is to be governed, at all times, by applicable provisions of Federal, State of Rhode Island and Town laws, regulations, and ordinances.

12. Foreign Corporations:

Attention of bidders is hereby directed to excerpts from Chapters 1 to 6 of Title 7 of the General Laws of Rhode Island, 1956, as amended, relative to the conditions precedent, etc. to carrying on business within this State for foreign corporations.

13. Bid Evaluation

This is an evaluated bid. Bids shall be evaluated on the following criteria using a weighted scale, values stated below:

Expensive	10%
Previous Performance	10%
Bid Amount	50%
Credentials/Qualifications	10%
Ability to perform described services/work	20%

14. Bid Award

The Town may elect to award the entire bid or only a portion of the bid.

15. Bidder Requirements

All bidders must have a minimum of 3 years' experience in the full time business of providing construction materials.

All Bidder's must have sufficient manpower, knowledge, inventory and must be able to obtain and supply all necessary materials described herein.

All necessary materials information shall be submitted for approval.

All bidders shall familiarize themselves with all materials requested.

Bidder further agrees that after notification that the bid has been accepted shall be organized to commence work upon bid award.

The Bidder will identify business entity as individual, or if doing business under an assumed name, indicate assumed name, partnership (naming partners) and indicate official capacity of person executing proposal and bid.

16. Information to Bidder

It is understood that the Town reserves the right to award the bid by item or alternate item, and further reserves the right to reject any and all proposals or parts thereof, to waive any informality in the proposals received and to accept the proposal or parts thereof, which it deems to be most favorable to the best interest of the Town.

The Purchasing Board reserves the right to reject any and all bids, to waive any informalities in the bids received and to accept the bid deemed most favorable to the interest of the Town.

17. Performance Bond

Contractor must provide at time of bid award a performance and payment bond for 100% of total of base bid amount by a company acceptable by the Town of North Providence and authorized by the State of Rhode Island to provide said bond.

18. Bid Bond

No bid bond required.

## **BID FORM**

### **Brook and Winona Street Area Flood Improvement Project**

To: Town of North Providence  
2000 Smith Street  
North Providence, RI 02911

From: \_\_\_\_\_  
Name of Proposer

\_\_\_\_\_  
Mailing Address

\_\_\_\_\_  
Town, State & Zip

**CONTRACTOR'S PROPOSAL** The undersigned Bidder agrees that he will contract with the Town of North Providence to provide all necessary labor, supervision, tools, and other means to do all the work and furnish all the materials specified in the contract in the manner and time therein prescribed, and that he will take in full payment the amount set forth hereon.

Bid for the Brook and Winona Street Area Flood Improvement Project, in its entirety, all Addenda, and the following documents by this reference are hereby made a part of this proposal:

- a. Bid Form
- b. General and Special Conditions
- c. Technical Specifications
- d. Project Plan Set Sheets 1-5 of 5

Bidder acknowledges receipt (if applicable) of Addenda Number(s) \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.

The cost of all labor, material, and equipment necessary for the completion of the work itemized, even though not shown or specified, shall be included in the unit price for the various items shown herein. The Town of North Providence reserves the right to increase or decrease the quantity of any item or omit items as may be deemed necessary and the same shall in no way affect or make void the contract. When increases or decreases are made, appropriate additions or deductions from the contract total price will be made at the stipulated unit price.

Please check your calculations before submitting your Bid; the Town of North Providence will not be responsible for Bidder's miscalculations.

**All items shall be completely filled out in writing for unit prices and numerical for Total price.**

PAY ITEM	DESCRIPTION
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1	<b>Site Preparation, Erosion Control and Final Clean Up</b>
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1 lump sum

unit price in writing: \_\_\_\_\_

Total price (numerical): \_\_\_\_\_

2	<b>Test Pits</b>
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10 Each

unit price in writing: \_\_\_\_\_

Total price: \_\_\_\_\_

3	<b>Saw cutting 4" DEPTH</b>
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120 Linear Feet

unit price in writing: \_\_\_\_\_

Total price: \_\_\_\_\_

4	<b>Remove and Dispose Flexible and Rigid Pavement (all depths)</b>
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1,380 Square Yard

unit price in writing: \_\_\_\_\_

Total price: \_\_\_\_\_

5	<b>Remove and Dispose Trees (all sizes)</b>
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10 Each

unit price in writing: \_\_\_\_\_



Total price:\_\_\_\_\_

**6 Plug, Fill and Abandon Existing Drainage Culvert/Pipe**

1 Lump Sum

unit price in writing:\_\_\_\_\_

Total price:\_\_\_\_\_

**7 Remove and Dispose Drain Pipe**

300 Linear Feet

unit price in writing:\_\_\_\_\_

Total price:\_\_\_\_\_

**8 Remove and Dispose CB or MH**

3 Each

unit price in writing:\_\_\_\_\_

Total price:\_\_\_\_\_

**9 Clear, Gurb and Stump Area**

1 Lump Sum

unit price in writing:\_\_\_\_\_

Total price:\_\_\_\_\_

**10 Gravel Borrow Sub-base**

400 Cubic Yards

unit price in writing:\_\_\_\_\_

Total price:\_\_\_\_\_

11 **1-1/2" Bituminous Surface Course**

120 Tons

unit price in writing:\_\_\_\_\_

Total price:\_\_\_\_\_

12 **2" Bituminous Binder Course**

150 Tons

unit price in writing:\_\_\_\_\_

Total price in:\_\_\_\_\_

13 **6" Loam and Seed**

1,300 Square Yards

unit price in writing:\_\_\_\_\_

Total price:\_\_\_\_\_

14 **12" ADS N-12 Drainage Pipe w/Trench Excavation**

82 Linear Feet

unit price in writing:\_\_\_\_\_

Total price:\_\_\_\_\_

15 **48" ADS N-12 Drainage Pipe w/Trench Excavation**

600 Linear Feet

unit price in writing:\_\_\_\_\_

Total price:\_\_\_\_\_

16                                **36” RCP Drainage Pipe w/Trench Excavation**

72 Linear Feet

unit price in writing:\_\_\_\_\_

Total price:\_\_\_\_\_

17                                **36” RCP Flared End Section w/Trench Excav. and Rip-Rap Pad**

1 Each

unit price in writing:\_\_\_\_\_

Total price:\_\_\_\_\_

18                                **48” Cast-In-Place Conc. Inlet Headwall and Rip-Rap Pad**

1 Each

unit price in writing:\_\_\_\_\_

Total price:\_\_\_\_\_

19                                **Catch Basin (RI STD. 4.4.0) w/Frame and Grate**

4 Each

unit price in writing:\_\_\_\_\_

Total price:\_\_\_\_\_

20                                **Drainage Manhole (RI STD. 4.2.2) w/Frame and Cover**

3 Each

unit price in writing: \_\_\_\_\_

Total price: \_\_\_\_\_

21                    **Relocate 70 LF 6" DICL Water Pipe w/all Fittings and Thrust Blocks**

70 Linear Feet

unit price in writing: \_\_\_\_\_

Total price: \_\_\_\_\_

22                    **Relocate Fire Hydrant w/all Fittings, Thrust Blocks and Valve**

1 Each

unit price in writing: \_\_\_\_\_

Total price: \_\_\_\_\_

23                    **Landscape In-kind Replacement (ALLOWANCE)**

1 Lump Sum

unit price in writing:      Ten thousand - five hundred dollars

Total price:      \$10,500.00

24                    **Police Details (ALLOWANCE)**

30 Days

unit price in writing:      Thirteen Thousand Four Hundred and forty dollars

Total price:      \$13,440.00

25

**RIDOT Sidewalk/Driveway Reconstruction (43.2.0 & 43.5.0)**

10 Cubic Yards

unit price in writing: \_\_\_\_\_

Total price: \_\_\_\_\_

26

**Trench Rock Excavation**

100 Cubic Yards

unit price in writing: \_\_\_\_\_

Total price: \_\_\_\_\_

\*\*\*\*\*

Project Total Cost in writing: \_\_\_\_\_

Project Total (numerical): \_\_\_\_\_

\*\*\*\*\*

\_\_\_\_\_  
Company Name of Bidder

\_\_\_\_\_  
Mailing Address (PO Box or street) Town, State, and Zip Code

\_\_\_\_\_  
Name of Authorized Representative

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

---

Type of Business (Corp, Partnership, Sole Proprietorship)

---

Telephone Number

---

Facsimile

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## **GENERAL CONDITIONS**

### **PART I**

#### **ARTICLE 1: CONTRACT AND CONTRACT DOCUMENTS**

The Drawings, Specifications, and addenda enumerated in Article 1 of the Special Conditions, the Invitation To Bid, the Standard Instructions To Bidders, the Special Instructions To Bidders, and the Bid Proposal as accepted by the OWNER, shall be binding upon the parties to this Agreement as if fully set forth therein. Whenever the terms "Contract Documents" are used, it shall mean and include this Contract, Special Conditions, General Conditions, the Standard Instructions To Bidders, the Special Instructions To Bidders, the Bid Proposal, Addenda, the Technical Specifications and the Drawings. The OWNER shall interpret his own requirements. In case of conflict or inconsistency between the provisions of the signed portions of the Contract Documents and those of the Specifications, the provision of the signed portions shall govern.

#### **ARTICLE 2: DEFINITIONS**

The following terms as used in this Contract are defined as follows:

- a. CHANGE ORDER - A written order to the CONTRACTOR authorizing an addition, deletion, or revision in the Work within the general scope of the Contract Documents, or authorizing an adjustment in the Contract Price or Contract Time.
- b. CONTRACT DOCUMENTS - The Contract, including Advertisement For Bids, Information For Bidders, Bid, Agreement, General Conditions, Special Conditions, Technical Specifications, Notice Of Award, Notice To Proceed, Change Order, Drawings, and Addenda.
- c. CONTRACTOR - A person, firm, or corporation with whom the Contract is made by the OWNER.
- d. DRAWINGS - The part of the Contract Documents which show the characteristics and scope of the Work to be performed, and which have been prepared by the Engineer.
- e. ENGINEER - Shall mean for the purpose of this Contract the party named in the Special Conditions who shall act as the authorized representative of the OWNER whenever reference is made for such authorization.
- f. FIELD ORDER - A written order effecting a change in the Work not involving an adjustment in the Contract Price or an extension of the Contract Time, issued by the Engineer to the CONTRACTOR during construction.

- g. NOTICE OF AWARD - The written notice of the acceptance of the Bid from the OWNER to the successful Bidder.
- h. NOTICE TO PROCEED - Written communication issued by the OWNER to the CONTRACTOR authorizing him to proceed with the Work and establishing the date of commencement of the Work.
- i. OWNER - Shall mean, for the purpose of this Contract, the party defined in the Agreement section of the Contract Documents which is the Town of North Providence.
- j. RESIDENT PROJECT REPRESENTATIVE - The authorized representative of the OWNER who is assigned to the Project Site or any part thereof.
- k. SHOP DRAWINGS - All drawings, diagrams, illustrations, brochures, schedules, and other data which are prepared by the CONTRACTOR, a Subcontractor, Manufacturer, Supplier or Distributor, which illustrates how specific portions of the Work shall be fabricated or installed.
- l. SPECIFICATIONS (TECHNICAL SPECIFICATIONS) - A part of the Contract Documents consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards and workmanship.
- m. SUBCONTRACTOR - A person, firm, or corporation supplying labor and materials, or only labor, for Work at the site of the Project for and under a separate Contract or Agreement with the CONTRACTOR.
- n. SUBSTANTIAL COMPLETION - That date as certified by the Engineer when the construction of the Project is sufficiently completed, in accordance with the Contract Documents, so that the Project or specified part can be utilized for the purpose for which it is intended.
- o. WORK ON THE PROJECT - Work to be performed at the location of the Project, including the transportation of materials and supplies to or from the site by employees of the CONTRACTOR or any Subcontractor.

### ARTICLE 3:                    QUANTITIES OF ESTIMATE

Whenever the estimated quantities of Work to be done and materials to be furnished under this Contract are shown in any of the documents including the Bid Proposal, they are given for use in comparing bids and the right is especially reserved by the OWNER to increase or diminish them as may be deemed necessary or desirable by the OWNER. Such increases or decreases shall in no way affect this Contract, nor shall any such increases or decreases give cause for claims or liabilities for damages.

### ARTICLE 4:                    CONFLICTING CONDITIONS

Any provisions of these General Conditions which may be in conflict or inconsistent with any of the articles in the Special Conditions shall be void to the extent of such conflict or inconsistency.

ARTICLE 5:                    PROVISION OF LAW DEEMED INSERTED

Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise, any such provision is not inserted, or is not correctly inserted, the Contract shall forthwith be physically amended to make such insertion or correction.

ARTICLE 6:                    NOTICE AND SERVICE THEREOF

The service of any notice, letter, or other communication shall be deemed to have been made by one of the contracting parties on the other party to the Contract when such letter, notice, or other communication has been delivered to the legal office address of the addressee, by a duly authorized representative of the addresser in person, or when such letter, notice, or other communication has been deposited in any regularly maintained mailbox of the United States Post Office, in a properly addressed, postpaid wrapper. The date of such service shall be considered to be the date of such personal delivery or mailing.

The address of the CONTRACTOR noted in his bid and/or the address of his field office on or near the site of Work shall be considered his legal address for the purposes as set forth above.

ARTICLE 7:                    GRATUITIES

If it is found, after notice and hearing, by the OWNER that gratuities (in the form of entertainment, gifts, or otherwise) were offered or given by the CONTRACTOR, or any agent or representative of the CONTRACTOR, to any official, employee, or agent of the OWNER, or of the State, with a view toward securing a Contract or securing favorable treatment with respect to the awarding or amending, or the making of any determinations with respect to the performance of this Contract, the OWNER, may by written notice to the CONTRACTOR, terminate the right of the CONTRACTOR to proceed under this Contract or may pursue each other's rights and remedies provided by law or under this Contract: provided, that the existence of the facts upon which the OWNER makes such findings shall be in issue and may be reviewed in proceedings pursuant to the "Remedies" Clause of this Contract.

In the event this Contract is terminated as provided in Paragraph (a) hereof, the OWNER shall be entitled (1) to pursue the same remedies against the CONTRACTOR as it could pursue in the event of a breach of the Contract by the CONTRACTOR, and (2) as a penalty in addition to any other damages to which it may be entitled by law, to exemplary damages in an amount (as determined by the OWNER) which shall be not less than three (3) nor more than ten (10) times the cost incurred by the CONTRACTOR in providing any such gratuities to any such officer or employee.

ARTICLE 8:                    COVENANT AGAINST CONTINGENT FEES

The CONTRACTOR warrants that no person or selling agency has been employed or retained to solicit or secure this Contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the CONTRACTOR for the purpose of securing business. For breach or violation of this warranty, the OWNER shall have the right to annul this Contract without liability or in its discretion to deduct from the Contract Price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

#### ARTICLE 9: REMEDIES

Except as may be otherwise provided in this Contract, all claims, counterclaims, disputes and other matters in question between the OWNER and the CONTRACTOR arising out of or relating to this agreement or the breach thereof will be decided in a court of competent jurisdiction within the State in which the OWNER is located.

### **PART II**

The rights and obligations of the CONTRACTOR under this Contract shall include, but not be limited to the following:

#### ARTICLE 10: REPRESENTATIONS OF THE CONTRACTOR

The CONTRACTOR represents and warrants:

- a. That he is financially solvent and that he is experienced and competent to perform the type of Work required under this Contract and that he is able to furnish the plant materials, supplies, or equipment that may be necessary to perform the Work as specified.
- b. That he is familiar with all Federal, State and municipal laws, ordinances, orders, and regulations which may in any way affect the Project Work, or the employment of persons thereon, including but not limited to any special acts relating to the Work or to the Project of which he is a part.
- c. That such temporary and permanent Work required by the Contract Documents to be done by him will be satisfactorily constructed and can be used for the purpose for which it was intended and that such construction will not injure any person or damage property.
- d. That he has carefully examined the Drawings, Specifications, and Addenda, if any, and the site of the Work and that from his own investigations, he has satisfied himself as to the nature and location of the Work, the character of equipment and other facilities needed for the performance of the Work, the general and local conditions, and all other items that may affect the Work. That he is aware of the hazards involved in the Work and the danger to life and property both evident and inherent and that he will conduct the Work in

a careful and safe manner without injury to persons or property.

ARTICLE 11:                    CONTRACTOR'S OBLIGATIONS

The CONTRACTOR shall perform all Work in a good workmanlike manner, and in accordance with the plans and Specifications and any supplements thereto, and according to any directions or orders given by the OWNER. He shall furnish all supplies, materials, facilities, equipment, and means necessary or proper to perform and complete the Work required by this Contract. He shall furnish, erect, maintain, and remove any construction plant or temporary Work as may be required. He alone shall be responsible for the safety, efficiency, and adequacy of his plant, appliances, and methods, and for any damage which may result from their failure or their improper construction, maintenance, or operation. The CONTRACTOR shall observe, comply with, and be subject to all terms, conditions, requirements, and limitations of the Contract and Specifications and shall do, carry on, and complete the entire Work to the satisfaction of the OWNER.

The CONTRACTOR shall be solely responsible for all the Work and shall provide all precautionary measures necessary for preventing injury to persons or damage to property. All injury or damage of whatever nature resulting from the Work or resulting to persons, property, or the Work during its progress, from whatever cause, shall be the responsibility of the CONTRACTOR.

The CONTRACTOR shall hold the OWNER and Engineer, or their duly authorized agents, harmless and defend and indemnify them against damages or claims for damages due to injuries to persons or property arising out of the execution of the Project Work, and for damages to materials furnished for the Work, for infringement of inventions, patents, and patent rights used in doing the Work, and for any act, omission, or instance of neglect by the CONTRACTOR, his agents, employees, or subcontractors.

The CONTRACTOR shall bear all losses resulting to him, including but not limited to losses sustained on account of the character, quality, or quantity of any part of the Work, or all parts of the Work, or because the nature of the conditions in or on the Project site are different from what was estimated or indicated, or on account of the weather, elements, or other causes.

## ARTICLE 12: TIME FOR COMPLETION AND LIQUIDATED DAMAGES

- a. It is hereby understood and mutually agreed by and between the CONTRACTOR and the OWNER that the date of beginning and the time of completion of the Work as specified in this Contract are ESSENTIAL CONDITIONS of this Contract, and it is further mutually understood and agreed that the Work embraced in this Contract shall be commenced on a date to be specified in the Notice To Proceed.
- b. The CONTRACTOR agrees that said Work shall be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will insure full completion thereof within the time specified, and further, that time of completion as agreed upon is reasonable, taking into consideration the average climatic range and usual industrial conditions



prevailing in this locality.

- c. If the said CONTRACTOR shall neglect, fail or refuse to complete the Work within the time herein specified, or any proper extension thereof granted by the OWNER, then the CONTRACTOR does hereby agree, as a partial consideration for the awarding of this Contract, to pay to the OWNER the amount specified in the Contract, not as a penalty, but as liquidated damages for such Breach of Contract as hereinafter set forth for each and every calendar day that the CONTRACTOR shall be in default, after the time stipulated in the Contract for completing the Work.
- d. The said amount is fixed and agreed upon by and between the OWNER and the CONTRACTOR, and said amount is agreed to be the amount of damages the OWNER would sustain in such an event as the above-mentioned, and said amount shall be retained from time to time by the OWNER for current periodical payments.
- e. It is further agreed that time is of the essence in each and every portion of the Contract and Specifications; where in a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the Contract an additional time is allowed for the completion of any Work, the new time limit fixed by such extension shall be by the CONTRACTOR and shall not be charged when the delay in completion of the Work is due to:
  - 1. Any preference, priority, or allocation order duly issued by the government, subsequent to the date of the Contract.
  - 2. Unforeseeable causes beyond the control and without the fault or negligence of the CONTRACTOR, including, but not restricted to acts of God, or of the public enemy, acts of the OWNER, acts of another contractor, fires, floods, epidemics, strikes, and unusually severe weather.

Any delays of subcontractors or suppliers approved by the OWNER.

Provided further that the CONTRACTOR shall within ten (10) days from the beginning of the delay, unless the OWNER shall grant a further period of time prior to the date of final settlement of the Contract, notify the OWNER in writing of the causes of the delay. The OWNER shall ascertain the facts and extent of the delay, and notify the CONTRACTOR within a reasonable time of its decision in the matter.

ARTICLE 13:                    TERMINATION FOR DEFAULT DAMAGES FOR DELAY; TIME EXTENSIONS

- a. If the CONTRACTOR refuses or fails to prosecute the Work, or any separable part thereof, with such diligence as will insure its completion within the time specified in this Contract, or any extension thereof, or fails to complete said Work within such time, the OWNER may, by written notice to the CONTRACTOR, terminate his right to proceed with the Work or such part of the Work as to which there has been a delay. In such event,

the OWNER may take over the Work and prosecute the same to completion, by Contract otherwise, and may take possession of and utilize in completing the Work such materials, appliances, and plant as may be on the site of the Work and necessary therefore. Whether or not the CONTRACTOR'S right to proceed with the Work is terminated, he and his sureties shall be liable for any damage to the OWNER resulting from his refusal or failure to complete the Work within the specified time.

- b. If fixed and agreed liquidated damages are provided in the Contract and if the OWNER so terminates the CONTRACTOR'S right to proceed, the resulting damage will consist of such liquidated damages until such reasonable time as may be required for final completion of the Work together with any increased costs occasioned the OWNER in completing the Work.
- c. If fixed and agreed liquidated damages are provided in the Contract and if the OWNER does not so terminate the CONTRACTOR'S right to proceed, the resulting damage will consist of such liquidated damages until the Work is completed or accepted.
- d. The CONTRACTOR'S right to proceed shall not be so terminated nor the CONTRACTOR charged with resulting damage if:
  - 1. The delay in the completion of the Work arises from causes other than normal weather beyond the control and without the fault or negligence of the CONTRACTOR, including but not restricted to, acts of God, acts of the public enemy, acts of the OWNER in either its sovereign or contractual capacity, acts of another contractor in the performance of a Contract with the OWNER, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, unusually severe weather, or delays of subcontractors or suppliers arising from causes other than normal weather beyond the control and without the fault of negligence of both the CONTRACTOR and such subcontractors or suppliers; and
  - 2. The CONTRACTOR, within ten (10) days from the beginning of any such delay (unless the OWNER grants a further period of time before the date of final payment under the Contract), notifies the OWNER in writing of the causes of delay. The OWNER shall ascertain the facts and the extent of the delay and extend the time for completing the Work when, in his judgment, the findings of fact justify such an extension and his findings of fact shall be final and conclusive on the parties, subject only to appeal as provided in the "Remedies clause of this Contract.
  - 3. If, after notice of termination of the CONTRACTOR'S right to proceed under the provisions of this clause, it is determined for any reason that the CONTRACTOR was not in default under the provisions of this clause, or that the delay was excusable under the provisions of this clause, the rights and obligations of the parties shall, if the Contract contains a clause providing for termination for convenience of the OWNER, be the same as if the notice of termination has been issued pursuant to such clause. If, in the foregoing circumstances, this Contract does not contain a clause providing for termination for convenience of the



The CONTRACTOR shall comply with all laws, regulations, ordinances, orders and rules relating to the performance of the Work, the protection of the adjacent property, and the maintenance of passageways, guard fences, and other protective facilities. The CONTRACTOR shall obtain the Utility Permit from the Rhode Island Department of Transportation for all proposed utility connections within any State owned roadway and shall pay all associated fees, at no additional cost to the OWNER.

#### ARTICLE 19: CONSTRUCTION SCHEDULE AND PERIODIC ESTIMATES

Within five (5) days after the date of "Notice To Proceed", the CONTRACTOR shall deliver to the OWNER an estimated construction progress schedule in a form satisfactory to the OWNER, showing the proposed dates of commencement and completion of each of the various subdivisions of Work required under the Contract Documents and the anticipated amount of each monthly payment that will become due to the CONTRACTOR in accordance with the progress schedule. The CONTRACTOR shall also furnish on forms to be supplied by the OWNER: 1) a detailed estimate, giving a complete breakdown of the Contract price; and 2) periodic itemized estimates of the Work done for the purpose of making partial payments thereon.

The CONTRACTOR shall perform the Work of this Contract to conform with the schedule as approved by the OWNER, except that the OWNER reserves the right to amend and alter the construction schedule at any time, if in a manner which is deemed to be in the best interest of the OWNER to do so. The CONTRACTOR shall arrange his Work to conform with this schedule as it may be revised from time to time by the OWNER, at no additional expense to the OWNER. The CONTRACTOR shall notify the OWNER immediately of any circumstances which may affect the performance of the Work in accordance with the current construction schedule.

#### ARTICLE 20: SEQUENCE OF THE WORK

The CONTRACTOR shall be required to prosecute his Work in accordance with a schedule prepared by him in advance in accordance with additional requirements specified herein and approved by the OWNER. This scheduling shall state the methods and shall forecast the times of doing each portion of the Work. Before beginning any portion of the Work, the CONTRACTOR shall give the OWNER advance notice and ample time for making necessary preparations.

#### ARTICLE 21: AUDIT ACCESS TO RECORDS

The CONTRACTOR shall maintain books, records, documents and other evidence directly pertinent to performance of Work under this Contract in accordance with generally accepted accounting principles and practices. The CONTRACTOR shall also maintain the financial information and data used by the CONTRACTOR in the preparation or support of the cost submission or for any negotiated Contract or Change Order and a copy of the cost summary submitted to the OWNER. The CONTRACTOR will provide proper facilities for such access and inspection. Audits conducted pursuant to this Provision shall be in accordance with generally accepted auditing standards and established procedures and guidelines of the reviewing or audit agency(ies).

The CONTRACTOR agrees to the disclosure of all information and reports resulting from the access to records pursuant to paragraphs above, to any of the agencies referred to above, provided that the CONTRACTOR is afforded the opportunity for an audit conference, and an opportunity to comment and submit any supporting documentation on the pertinent portions of the draft audit report and that the final audit report will include written comments of reasonable length, if any, of the CONTRACTOR.

Records under paragraphs above, shall be maintained and made available during performance on Work under this Contract and until three (3) years from the date of final payment for the Project. In addition, those records which related to any "Dispute", appeal agreement, or litigation, or the settlement of claims arising out of such performance, or costs of items to which an audit exception has been taken, shall be maintained and made available until three (3) years after the date of resolution of such appeal, litigation, claim or exception.

ARTICLE 22:            REPORTS, RECORDS, AND DATA

The CONTRACTOR and each of his subcontractors, shall submit to the OWNER such schedules of quantities and costs, progress schedules, payrolls, reports, estimates, records, and other data as the OWNER may request concerning the Work performed or to be performed under this Contract.

ARTICLE 23:            DIFFERING SITE CONDITIONS

- a.        The CONTRACTOR shall promptly and before such conditions are disturbed, notify the OWNER in writing of: (1) subsurface of latent physical conditions at the site differing materially from those indicated in this Contract, or (2) unknown physical conditions at the site, of any unusual nature, differing materially from those ordinarily encountered and generally recognized as inhering in Work of the character provided for in this Contract. The OWNER shall promptly investigate the conditions and if he finds that such conditions do materially so differ and cause an increase or decrease in the CONTRACTOR'S cost of, or the time required for, performance of any of the Work under this Contract, whether or not changed as a result of such conditions, an equitable adjustment shall be made and the Contract modified in writing accordingly.
- b.        No claim of the CONTRACTOR under this clause shall be allowed unless the CONTRACTOR has given the notice required in (a) above; provided, however, the time prescribed therefore may be extended by the OWNER.

No claim by the CONTRACTOR for an equitable adjustment hereunder shall be allowed if asserted after final payment under this Contract.

ARTICLE 24:            PAYMENTS OF LABOR AND PAYMENT OF DEBTS BY THE CONTRACTOR

The CONTRACTOR shall pay:

- a. For all transportation and utility services not later than the 20th day of each calendar month following that in which services were rendered.
- b. For all materials, tools, and other expendable equipment to the extent of 90 percent (90%) of the cost thereof, not later than the 20th day of the calendar month following that in which such items were delivered to the site of Work, and the balance of the cost thereof not later than the 30th day following the completion of that part of the Work in or on which such materials, tools, or equipment are incorporated or used.
- c. To each of his subcontractors, not later than the 5th day following each payment to the CONTRACTOR, the respective amounts allowed the CONTRACTOR on account of the Work performed by his subcontractors to the extent of such subcontractor's interest therein.
- d. Payment for trucking or materials furnished withholding of sums due. A CONTRACTOR or subcontractor on public works authorized by a proper authority shall pay any obligation or charge for trucking and materials which have been furnished for the use of such CONTRACTOR or subcontractor, in connection with the public works being performed by him, within ninety (90) days after such obligation or charge is incurred or the trucking service has been performed or the material has been delivered to the site of the Work, whichever is later. When it is brought to the notice of the proper authority in a city or town, or the proper authority in the state having supervision of such Contract, that such obligation or charge has not been paid by the CONTRACTOR or subcontractor, the proper authority may deduct and hold for a period not exceeding sixty (60) days, from sums of money due to the CONTRACTOR or subcontractor, the equivalent amount of such sums certified by a trucker or material man creditor as due him, as provided in this section, and which the proper authority determines is reasonable for trucking performed or, materials furnished for such public works.
- e. Ascertainment of prevailing rate of wages and other payments - specification of rate in call for bids and in the Contract. Before awarding any Contract for public works to be done, the proper authority shall ascertain from the director of labor the general prevailing rate of the regular, holiday, and overtime wages paid and the general prevailing payments on behalf of employees only, to lawful welfare, pension, vacation, apprentice training, and educational funds (payments to said funds must constitute an ordinary business expense deduction for federal income tax purposes by contractors) in the city, town, village, or other appropriate political subdivision of the state in which the Work is to be performed, for each craft, mechanic, teamster, laborer, or type of workman needed to execute the Contract for the public works, and shall specify in the call for bids for the Contract and in the Contract itself, the general prevailing rate of the regular, holiday, and overtime wages paid and the payments on behalf of employees only, to such welfare, pension, vacation apprentice training, and educational funds existing in the locality for each craft, mechanic, teamster, laborer, or type of workman needed to execute the Contract or Work.

f. Specification in Contract of amount and frequency of payment of wages.

1. Every call for bids for every Contract in excess of one thousand dollars (\$1,000.00), to which the State of Rhode Island or any political subdivision thereof is part, for construction, buildings, or public works of the State of Rhode Island or any political subdivision thereof, and which requires or involves the employment of employees, shall contain a provision stating that the minimum wages as determined by the Director Of Labor will be the prevailing wages paid for similar Work to the Contract Work in the city, town, or village in which the Work is to be performed; and every Contract shall contain a stipulation that the CONTRACTOR or his subcontractor shall pay all unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account, the full amounts those stated in the call for bids, regardless of any contractual relationships which may be alleged to exist between the CONTRACTOR or subcontractor and such employees, and that the scale of wages to be paid shall be posted by the CONTRACTOR in a prominent and easily accessible location, and that there may be withheld from the CONTRACTORS so much of accrued payments as may be considered necessary to pay to such employees employed by the CONTRACTOR or any subcontractor on the Work difference between the rates of wages required by the Contract to be paid said employees on the Work and not refunded to the CONTRACTOR, subcontractor, or their agents.
2. The terms "wages", "scale of wages", "wage rates", "minimum wages", and "prevailing wages" shall not include:
  - a. the basic hourly rate of pay; and
  - b. the amount of:
    1. the rate of contribution made by a CONTRACTOR or subcontractor to a trustee or to a third person pursuant to a fund, plan, or program; and
    2. the rate of costs to the CONTRACTOR or subcontractor which may be reasonably anticipated in providing benefits to employees pursuant to an enforceable commitment to carry out a financially responsible plan or program which was communicated in writing to the employees affected, for medical or hospital care, pensions or retirement or death, compensation for injuries or illness resulting from occupational activity, or insurance to provide any of the foregoing, for unemployment benefits, life insurance, disability and sickness insurance, or accident insurance, for vacation and holiday pay, for defraying costs of apprenticeship or other similar programs, or for other bona fide fringe benefits, but only where the CONTRACTOR or subcontractor is not required by other federal, state or local law to provide any of such benefits: provided, that the obligation of a CONTRACTOR or subcontractor to make payment in accordance with the prevailing wage determinations of the Director of Labor insofar as

3. The term "employees", as used in this section, shall include employees of CONTRACTORS or subcontractors performing jobs on various types of public works including mechanics, apprentices, teamsters, chauffeurs and laborers engaged in the transportation of gravel or fill to the site of public works or removal of gravel or fill from one location to another on the site of public works, and the employment of such employees shall be subject to provisions of 1. and 2. of this section.

Neither the final certificate of payment nor any provision in the Contract Documents nor any partial or entire occupancy of the premises by the OWNER shall constitute an acceptance of Work not done in accordance with the Contract Documents or relieve the CONTRACTOR of liability in respect to any express warranties or responsibility for faulty workmanship or materials. The CONTRACTOR shall remedy any defects in the Work and pay for any damage to other Work resulting therefrom, which shall appear within a period of one (1) year from the date of final acceptance of the Work, unless a longer period is specified by the OWNER. The OWNER will give final notice of observed defects with reasonable promptness.

In addition to the specified or described portions of the Work, all other Work and all other materials, equipment, and labor of whatever description, necessary or required to complete the Work, or for carrying out the full intent of the drawings and Specifications, such Work, labor, materials, and equipment shall be provided by the CONTRACTOR, and payment therefore shall be considered as having been included in the price stipulated for the appropriate item of Work listed in the bid.

The CONTRACTOR shall be responsible for all damages to persons or property that occur as a result of his fault or negligence in connection with the prosecution of the Work and shall be responsible for the proper care and protection of all materials delivered and Work performed until completion and final acceptance by the OWNER, whether or not the same has been covered by partial payments made by the OWNER.



ARTICLE 28:                    PROTECTION OF CONSTRUCTION FEATURES

The CONTRACTOR shall take adequate precautions to protect existing sidewalks, curbs, pavements, utilities, adjoining property and such incidentals, and to avoid damage thereto. The CONTRACTOR shall completely repair any damage at no additional expense to the OWNER.

ARTICLE 29:                    SAFETY AND HEALTH REGULATIONS

These Contract Documents, and the joint and several phases of construction hereby contemplated, are to be governed, at all times, by the applicable provisions of the Federal law(s), including but not limited to the following:

1. Williams-Steiger Occupational Safety and Health Act, 1970, Public Law 92-596;
2. Part 1910 of the Occupational Safety and Health Standards, Chapter XVII of Title 29, Code of Federal Regulations;
3. This Project is subject to all of the Safety and Health Regulations (CFR 29, Part 1926 and all subsequent amendments) as promulgated by the U.S. Department of Labor on June 24, 1974. CONTRACTORS are urged to become familiar with the requirements of these regulations.

In the event of any inconsistencies between the above laws and regulations and the provisions of these Contract Documents, the laws and regulations shall prevail.

ARTICLE 30:                    PROTECTION OF WORK AND PROPERTY IN EMERGENCY

- a. The CONTRACTOR shall at all times safely guard the OWNER'S property from injury or loss in connection with this Contract. He shall at all times safely guard and protect his own Work, materials incorporated into the Work or stockpiled at the site, and that of adjacent property, from damage. The CONTRACTOR shall replace or make good any such damage, loss or injury.
- b. In case of an emergency which threatens loss or injury of property, and/or safety of life, the CONTRACTOR will be allowed to act, without previous instructions from the OWNER, in a diligent manner. He shall notify the OWNER immediately thereafter. Any claim for compensation by the CONTRACTOR due to such extra Work shall be promptly submitted to the OWNER for approval.
- c. Where the CONTRACTOR has not taken action but has notified the OWNER of an emergency threatening injury to persons or damage to the Work or to any adjoining property, he shall act as instructed or authorized by the OWNER.
- d. The amount of reimbursement claimed by the CONTRACTOR on account of any emergency action shall be determined in the manner provided elsewhere in the Contract Documents.

ARTICLE 31:                    FIRE PREVENTION AND PROTECTION

All State and municipal rules and regulations with respect to fire prevention, fire-resistant construction, and fire protection shall be strictly adhered to on all Work and facilities necessary therefore shall be provided and maintained by the CONTRACTOR in an approved manner.

All fire protection equipment such as water tanks, hoses, pumps, extinguishers and other materials and apparatus, shall be provided for the protection of the Contract Work, temporary Work, and adjacent property. Trained personnel experienced in the operation of all fire protection equipment and apparatus shall be available on the site whenever Work is in progress, and at such other times as may be necessary for the safety of the public and the Work.

ARTICLE 32:                    PROTECTION OF LIVES AND HEALTH

- a.     In order to protect the lives and health of his employees under this Contract, the CONTRACTOR shall meet all pertinent provisions of the "Manual of Accident Prevention in Construction," issued by the Associated General Contractors of America, Inc., and shall maintain an accurate record of all cases of death, occupational diseases, and injuries requiring medical attention or causing loss of time of employment on the Contract Work.
- b.     The CONTRACTOR alone shall be responsible for the safety, efficiency, and adequacy of his plant, appliances, and methods, and for any damage which may result from their failure or their improper construction, maintenance or operation.

ARTICLE 33:                    PROTECTION AGAINST HIGH WATER AND STORM

The CONTRACTOR shall take all precautions to prevent damage to Work or equipment by high water or by storms. The OWNER may prohibit the carrying out of Work at any time when in his judgment high waters or storm conditions are unfavorable or unsuitable, or at any time regardless of the weather when proper precautions are not being taken to safeguard previously constructed Work or Work in progress.

In case of damage caused by the failure of the CONTRACTOR to take adequate precautions, the CONTRACTOR shall repair or replace equipment damaged and shall make such repairs or rebuild such parts of the damaged Work as the OWNER may require, at no additional cost to the OWNER.

ARTICLE 34:                    FIRST AID TO INJURED

The CONTRACTOR shall keep in his office, ready for immediate use, all articles necessary for giving first aid to injured employees. He shall also provide arrangements for the immediate removal and hospital treatment of any employees injured on the Work site, who require same.

ARTICLE 35:                    HURRICANE PROTECTION

Should hurricane warnings be issued, the CONTRACTOR shall take every precaution to minimize danger to persons, to the Work, and to adjacent property. These precautions shall include closing all openings, removing all loose materials, tools and equipment from exposed locations, and removing all scaffolding and other temporary Work.

ARTICLE 36:            USE OF PREMISES AND REMOVAL OF DEBRIS

The CONTRACTOR undertakes, at his own expense:

- To take every precaution against injuries to persons or damage to property.
- To store his apparatus, materials, equipment and supplies in such orderly fashion at the site of the Work, as will not unduly interfere with the progress of his Work or any others.
- To place upon the Work or any part thereof, only such loads as are consistent with the safety of that portion of the Work.
- To clean frequently all refuse, scrap, and debris caused by his operations, so that the Work site is maintained in a neat, workmanlike appearance.
- To effect all cutting, fitting, or patching of his Work required to make the same conform to the drawings and Specifications, and except with the consent of the OWNER, not to cut or otherwise alter the Work of any other contractor.
- Before final payment, to remove all surplus materials, false Work, temporary structures, including foundations thereof, plants of any description, and debris of any nature, resulting from his operations, so that the site is left in a neat, orderly, and workmanlike condition.

ARTICLE 37:            CORRECTION OF WORK

All Work, materials, all processes of manufacture, and all methods of construction shall be at all times and places subject to the inspection of the OWNER, who shall be the final judge of the quality and suitability of the Work performed under this Contract. Should any of the Work performed fail to meet with his approval, it shall be forthwith reconstructed, made good, replaced, and/or corrected as the case may be, by the CONTRACTOR, at his own expense. Rejected material shall be immediately removed from the site. If, in the opinion of the OWNER, it is undesirable to replace, reconstruct, or correct any of the Work not performed in accordance with the Contract Documents, the compensation to be paid to the CONTRACTOR shall be reduced by such amounts as in the judgment of the OWNER shall be equitable.

ARTICLE 38:            FAILURE TO REPAIR

Any emergency rising from the interruption of electric, gas, water, or sewer service due to the activities of the CONTRACTOR, shall be repaired by the CONTRACTOR as quickly as is

possible.

If and when, in the opinion of the OWNER, the CONTRACTOR is not initiating repair Work as expeditiously as possible upon notification to do so, the OWNER, may, at his own option, make the necessary repairs using his own forces or those of others. The cost of such repairs shall be subtracted from the payments due to the CONTRACTOR.

ARTICLE 39:            WEATHER CONDITIONS

In the event of temporary suspension of the Work, or during inclement weather, or whenever the OWNER shall direct, the Contractor shall, and shall cause his subcontractors to, protect carefully his and their Work and materials against damage-or injury from the weather. If, in the opinion of the OWNER, any Work or materials are damaged or injured by reason of failure to protect them on the part of the CONTRACTOR, or any of his subcontractors, or otherwise damaged or injured by the CONTRACTOR'S negligence, or are found to be defective, such materials or Work shall be removed and replaced at the expense of the CONTRACTOR.

ARTICLE 40:            WORK IN COLD WEATHER

The OWNER may determine when conditions are unfavorable for Work and may order the Work, or any portion thereof, suspended whenever, in his opinion, the conditions are not such as will insure first-class Work.

ARTICLE 41:            NIGHT WORK

Nightwork, or Work on Saturdays, Sundays, or legal holidays requiring the presence of an engineer or inspector, will not be permitted except in case of emergency, and only upon the approval of the OWNER. Should it be necessary for the OWNER to operate an organization for continuous NIGHT WORK or for emergency NIGHT WORK, the lighting, safety and other facilities which are deemed necessary shall be provided by the CONTRACTOR. Compensation for this Work shall be considered as having been included in the prices stipulated for the appropriate items of Work as listed in the bid, and no extra compensation will be paid by the OWNER.

ARTICLE 42:            LIGHTS, BARRIERS, WATCHMEN, AND INDEMNITY

The CONTRACTOR shall erect and maintain such barriers, lighting, warning lights, danger warning signals, and signs that will prevent accidents during the construction Work and protect the Work and insure the safety of personnel and the public at all times and places; the CONTRACTOR shall indemnify and protect the OWNER and Engineer in every respect from injury or damage whatsoever caused by any act of neglect by the CONTRACTOR or his subcontractors, or their servants or agents.

In addition to the above, when and as necessary, or when required by the OWNER, the CONTRACTOR shall post signs and employ watchmen or flagmen, for the direction of traffic at the site and for excluding at all times unauthorized persons from the Work site, for which the

CONTRACTOR shall be paid no additional compensation.

The CONTRACTOR shall be responsible for excluding at all times from the land within the easement areas, all persons not directly connected with the Work.

All Work occurring on State of Rhode Island highways shall be clearly identified, protected, and the public's safety ensured by erection of signs, barriers, and all other provisions as outlined in the Manual on Uniform Traffic Control Devices for Streets and Highways; issued by the U.S. Department of Transportation, Federal Highway Administration, 2003; Part VI, "Temporary Traffic Controls".

ARTICLE 43:                    LOADING

No part of the structures involved in this Contract shall be loaded during construction with a load greater than it is calculated to carry with safety. Should any accidents or damage occur through any violation of this requirement, the CONTRACTOR will be held responsible under his Contract and bond.

ARTICLE 44:                    DISPOSAL OF MATERIALS

The materials used in the construction of the Work, shall be deposited in such manner so they will not endanger persons or the Work, and so that free access may be had at any time to all hydrants and gates in the vicinity of the Work. The materials shall be kept trimmed up so that as little inconvenience as possible to the public or adjoining tenants is caused.

ARTICLE 45:                    FINISHING AND CLEANING UP

In completing his operations, the CONTRACTOR shall immediately remove all surplus material, tools, and other property belonging to him, leaving the entire street or surroundings free and clean and in good order, at no additional expense to the OWNER. The CONTRACTOR shall exercise special care in keeping the rights-of-way and private lands upon which Work is performed free and clean of all debris, and shall remove all tools and other property when they are not in use.

In case the CONTRACTOR fails or neglects to promptly remove all surplus materials, tools, and incidentals after backfilling, leaving the street or surrounding area clean and free of debris, and do the required repaving when ordered, the OWNER may, after 24 hours' notice, cause the Work to be done and the cost thereof deducted from any payment due to the CONTRACTOR.

ARTICLE 46:                    SPIRITUOUS LIQUORS

The CONTRACTOR shall neither permit nor suffer the introduction of spirituous liquors upon the Work embraced in this Contract, nor the use of the same.

ARTICLE 47:                    DUST CONTROL

The CONTRACTOR shall exercise every precaution and means to prevent and control dust arising out of all construction operations from becoming a nuisance to abutting property owners or surrounding neighborhoods. Pavements adjoining the pipe trench shall be kept broomed off and washed clean of excess materials wherever and whenever directed. Repeated daily dust control treatment shall be provided to satisfactorily prevent the spread of dust until permanent pavement repairs are made and until earth stockpiles have been removed, and all construction operations that might cause dust have been completed. No extra payment will be made for these dust control measures, compensation shall be considered to be included in the prices stipulated for the appropriate items as listed in the bid.

If so directed by the OWNER, the CONTRACTOR shall furnish and apply calcium chloride for supplemental control of dust.

Calcium chloride shall conform to the requirements of AASHTO M.144 (ASTM D-98) except that the pellet form and the flake form shall be equally acceptable.

Calcium chloride shall be applied only at the locations, at such times and in the amount as may be directed by the OWNER. It shall be spread in such manner and by such devices that uniform distribution is attained over the entire area on which it is ordered placed.

There will be no separate payment for this Work. The cost of the Work shall be included in the price bid for the various other items of Work.

### **PART III**

The rights and obligations of the OWNER under this Contract shall include, but not be limited to the following:

#### **ARTICLE 48: THE OWNER'S AUTHORITY**

The OWNER shall give all orders and directions contemplated under this Contract and Specifications relative to the execution of the Work. The OWNER shall determine the amount, quality, acceptability, and fitness of the several kinds of Work and materials which are to be paid for under this Contract and shall decide all questions which may arise in relation to said Work and the construction thereof. The OWNER'S estimates and decisions shall be final and conclusive, except as herein otherwise expressly provided. In case any question shall arise between the parties hereto relative to said Contract or Specifications, the determination or decision of the OWNER shall be a condition precedent to the right of the CONTRACTOR to receive any money or payment for Work under this Contract affected by such questions.

The OWNER shall decide the meaning and intent of any portion of the Specifications and of any plans or drawings where the same may be found to be obscure or be in dispute. Any differences or conflicts in regard to their Work which may arise between the CONTRACTOR and other contractors performing Work for the OWNER, shall be adjusted and determined by the OWNER.

#### **ARTICLE 49: ALL WORK SUBJECT TO CONTROL BY THE OWNER**

- a. In the performance of the Work, the CONTRACTOR shall abide by all orders, directions, and requirements of the OWNER, and shall perform all Work to the satisfaction of the OWNER, and at such times and places, by such methods, and in such manner and sequence as he may require. The OWNER shall determine the amounts, quality, acceptability, and fitness of all parts of the Work. The OWNER shall interpret the drawings, Specifications, contract documents, all other documents, and the extra Work orders. The OWNER shall also decide all other questions in connection with the Work. The CONTRACTOR shall employ no plant, equipment, materials, methods or men to which the OWNER objects and shall remove no plant, materials, or equipment, or other facilities from the Work site without the OWNER'S permission. Upon request, the OWNER will confirm in writing any oral order, direction, requirement, or determination.
- b. Inspectors shall be authorized to inspect all Work done and materials furnished. Such inspection may extend to all parts of the Work and to the preparation or manufacture of the materials to be used. The presence or absence of an inspector shall not relieve the CONTRACTOR from any requirements of the Contract. In case of any dispute arising between the CONTRACTOR and the inspector as to materials furnished or the manner in which the Work is being executed, the inspector shall have the authority to reject material, and suspend Work until the question has been decided by the OWNER. The inspector shall not be authorized to revoke, alter, enlarge, relax, or release any requirement of these Specifications, nor to approve or accept any portion of the Work, nor to issue instructions contrary to the drawings and Specifications. The inspector shall in no case act as foreman or perform other duties for the CONTRACTOR, or interfere with the management of the Work by the latter. Any advice which the inspector may give the CONTRACTOR shall in no way be construed as binding the OWNER or the Engineers in any way, nor releasing the CONTRACTOR from the fulfillment of the terms of the Contract.

The enumeration in this Contract of particular instances in which the opinion, judgment, discretion, or determination of the OWNER shall control or in which Work shall be performed to his satisfaction or subject to his approval or inspection, shall not imply that only matters similar to those enumerated shall be so governed and performed, but without exception all the Work shall be so governed and performed.

In the event that any of the provisions of this Contract are violated by the CONTRACTOR, or any of his subcontractors, the OWNER may serve written notice upon the CONTRACTOR and the Surety of his intention to terminate the Contract, such notice to contain the reasons for such intention to terminate the Contract. If within ten (10) days such violation or delay shall not cease, and satisfactory arrangement or correction made, the Contract shall, at the expiration of the ten (10) days, cease and immediately serve notice thereof upon the Surety and the CONTRACTOR, and the Surety shall have the power to take over and perform the Contract; provided, however,

that if the Surety does not commence performing thereof within ten (10) days from the date of mailing to such Surety a Notice Of Termination, the OWNER may take over the Work and prosecute the same to completion by Contract or force account at the expense of the CONTRACTOR, and the CONTRACTOR and his Surety shall be liable to the OWNER for any excess cost occasioned the OWNER thereby.

ARTICLE 52:            TERMINATION FOR CONVENIENCE

The performance of Work under this Contract may be terminated by the OWNER in accordance with this clause in whole, or from time to time in part, whenever the OWNER shall determine that such termination shall be effected by delivery to the CONTRACTOR of a Notice Of Termination specifying the extent to which performance of Work under the Contract is terminated, and the date upon which such termination becomes effective.

After receipt of a Notice Of Termination, and except as otherwise directed by the OWNER, the CONTRACTOR shall:

1. Stop Work under the Contract on the date and to the extent specified in the Notice Of Termination;
2. Place no further orders or subcontracts for materials, services, or facilities except as may be necessary for completion of such portion of the Work under the Contract as is not terminated;
3. Terminate all orders and subcontracts to the extent that they relate to the performance of Work terminated by the Notice Of Termination;
4. Assign to the OWNER in the manner, at the times, and to the extent directed by the OWNER, all of the rights, title and interest of the CONTRACTOR under the orders and subcontracts so terminated. In which case, the OWNER shall have the right, in its discretion, to settle, or pay any or all claims arising out of the termination of such orders and subcontracts;
5. Settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts, with the approval or ratification of the OWNER to the extent he may require, which approval or ratification shall be final for all the purposes of this clause;
6. Transfer title to the OWNER, and deliver in the manner, at the times, and to the extent, if any, directed by the OWNER, (i) the fabricated or unfabricated parts, Work in progress, completed Work, supplies, and other material produced as a part of, or acquired in connection with the performance of the Work terminated by the Notice Of Termination, and (ii) the completed or partially completed plans, drawings, information, and other property which, if the Contract had been completed, would have been required to be furnished



to the OWNER;

7. Use his best efforts to sell, in the manner, at the times, to the extent, and at the price or prices directed or authorized by the OWNER, any property of the types referred to in (6) above; provided however, that the CONTRACTOR (i) shall not be required to extend credit to any purchaser, and (ii) may acquire any such property under the conditions prescribed and at a price or prices approved by the OWNER: and, provided further, that the proceeds of any such transfer or disposition shall be applied in reduction of any payments to be made by the OWNER to the CONTRACTOR under this Contract, or shall otherwise be credited to the price or cost of the Work covered by this Contract or paid in other such manner as the OWNER may direct;
  8. Complete performance of such part of the Work as shall not have been terminated by the Notice Of Termination; and,
  9. Take such action as may be necessary, or as the OWNER may direct, for the protection and preservation of the property related to this Contract which is in the possession of the CONTRACTOR and which the OWNER has or may acquire an interest.
- c. After receipt of a Notice Of Termination, the CONTRACTOR shall submit to the OWNER his termination claim, in the form and with the certification prescribed by the OWNER. Such claim shall be submitted promptly but in no event later than one (1) year from the effective date of termination, unless one or more extensions in writing are granted by the OWNER upon request of the CONTRACTOR made in writing within such one-year period or authorized extension thereof. However, if the OWNER determines that the facts justify such action, he may receive and act upon any such termination claim at any time after such one-year period or extension thereof. Upon failure of the CONTRACTOR to submit his termination claim within the time allowed, the OWNER may determine, on the basis of information available to him, the amount, if any, due to the CONTRACTOR by reason of the termination and shall thereupon pay to the CONTRACTOR the amount so determined.
- d. Subject to the provisions of paragraph (c), the CONTRACTOR and the OWNER may agree upon the whole or any part of the amount or amounts to be paid to the CONTRACTOR by reason of the total or partial termination of Work pursuant to this clause which amount or amounts may include a reasonable allowance for profit on Work done: provided, that such agreed amount or amounts, exclusive of settlement costs, shall not exceed the total Contract Price as reduced by the amount of payments otherwise made and as further reduced by the Contract Price or Work not terminated. The Contract shall be amended accordingly, and the Contract shall be paid the agreed amount. Nothing in paragraph (e) of this clause, prescribing the amount to be paid to the CONTRACTOR in the event of failure of the CONTRACTOR and the OWNER to agree upon the whole amount to be paid to the CONTRACTOR by reason of the termination of Work pursuant to this paragraph (d).

e. In the event of failure of the CONTRACTOR and the OWNER to agree as provided in paragraph (d) upon the whole amount to be paid to the CONTRACTOR by reason of the termination of Work pursuant to this clause, the OWNER shall determine, on the basis of information available to him, the amount, if any, due to the CONTRACTOR; the amounts determined as follows:

1. With respect to all Contract Work performed prior to the effective date of the Notice Of Termination, the total (without duplication of any items) of:
  - i. The cost of such Work;
  - ii. The cost of settling and paying claims arising out of the termination of Work under subcontracts or orders provided in paragraph (b)(5) above, exclusive of the amounts paid or payable on account of supplies or materials delivered, or services furnished by the subcontractor prior to the effective date of the Notice Of Termination of Work under this Contract, which amounts shall be included in the cost on account of which payment is made under (i) above, and;
  - iii. A sum, as profit on (i) above, determined by the OWNER to be fair and reasonable: provided, however, that if it appears that the CONTRACTOR would have sustained loss on the entire Contract had it been completed, no profit shall be included or allowed under this subdivision (iii) and an appropriate adjustment shall be made reducing the amount of the settlement to reflect the indicated rate of loss; and,
2. The reasonable cost of the preservation and protection of property incurred pursuant to paragraph (b)(9); and any other reasonable cost incidental to termination of Work under this Contract, including expense incidental to the determination of the amount due to the CONTRACTOR as the result of the termination of Work under this Contract.

The total sum to be paid to the CONTRACTOR under (1) above shall not exceed the total Contract Price as reduced by the amount of payments otherwise made, and as further reduced by the Contract Price of Work not terminated. Except for normal spoilage, and except to the extent that the OWNER shall have otherwise expressly assumed the risk of loss, there shall be excluded from the amounts payable to the CONTRACTOR under (1) above, the fair value, as determined by the OWNER, of property which is destroyed, lost, stolen, or damaged so as to become undeliverable to the OWNER, or to a buyer pursuant to paragraph (b)(7).

f. The CONTRACTOR shall have the right to dispute under the clause of this Contract entitled "Remedies" from any determination made by the OWNER under paragraph (c) or (e) above, except that, if the CONTRACTOR has failed to submit his claim within the time provided in paragraph (c) above and has failed to request extension of such item, he shall have no such right of appeal. In any case, where the OWNER has made a determination of

g. In arriving at the amount due the CONTRACTOR under this clause, there shall be deducted (1) all unliquidated advance or other payments on account theretofore made to the CONTRACTOR, applicable to the terminated portion of this contract, (2) any claim which the OWNER may have against the CONTRACTOR in connection with this Contract, and (3) the agreed price for, or the proceeds of sale of any materials, supplies, or other things kept by the CONTRACTOR or sold, pursuant to the provisions of this clause, and not otherwise recovered by or credited by the OWNER.

h. If the termination hereunder be partial, prior to the settlement of the terminated portion of this Contract, the CONTRACTOR may file with the OWNER a request in writing for an equitable adjustment of the price or prices specified in the Contract relating to the continued portion of the Contract (the portion not terminated by the Notice Of Termination) and such equitable adjustment as may be agreed upon shall be made in such price or prices; however, nothing contained herein shall limit the right of the OWNER and amounts to be paid to the CONTRACTOR for the completion of the continued portion of the Contract, when said Contract does not contain an established contract price for such continued portion.

Nothing herein contained or shown on the drawings shall be construed as giving the CONTRACTOR exclusive occupancy of the Work area. The OWNER or any other contractors employed by him, the various utility companies, contractors, or subcontractors employed by State or Federal agencies, or any other agencies involved in the general Project or upon public rights-of-way, may enter upon or cross the area of Work or occupy portions of the area as is directed or necessary. When the territory of one contract is the convenient means of access to the other, the CONTRACTOR shall arrange his Work in such a manner as to permit such access to the other and prevent unnecessary delay to the Work as a whole.

Land and rights-of-way for the purpose of this Contract shall be furnished by the OWNER to the extent shown on the drawings; the OWNER will use due diligence in acquiring said lands and rights-of-way as speedily as possible. If, however, lands or rights-of-way cannot be obtained before Work on the Project begins, the CONTRACTOR shall begin his Work upon such land or rights-of-way as have been previously acquired by the OWNER, and no claims for damages whatsoever will be allowed by reason of the delay in obtaining the remaining land and rights-of-way. Should the OWNER be prevented or enjoined from proceeding with the Work, or from authorizing its prosecution, either before or after the commencement by reason of litigation, or by reason or its inability to procure the land or rights-of-way for the said Work, the CONTRACTOR shall not be entitled to make or assert a claim for damages by reason of the said

delay, or to withdraw from the Contract except by consent of the OWNER. Time for completion of Work will be extended to such time as the OWNER determines will compensate for the time lost by such delay, such determination to be set forth in writing.

ARTICLE 55:            CONFORMANCE WITH DIRECTIONS

The OWNER may make alterations in the line, grade, plan, form, dimension, or materials of the Work, or any part thereof, either before or after the commencement of construction. Should such alterations diminish the quantity included in any item or Work to be done and paid for at a unit price, the CONTRACTOR shall have no claim for damages or for anticipated profits on the Work that thus may be dispensed with if they increase the quantity included in any such item, such increase shall be paid for at the stipulated prices.

ARTICLE 56:            INTERPRETATION OF THE DRAWINGS AND SPECIFICATIONS

Except for the CONTRACTOR'S executed set, all drawings and Specifications are the property of the OWNER. The OWNER will furnish the CONTRACTOR, without charge, three (3) sets of the drawings and Specifications. Additional sets will be furnished upon request, at actual cost of reproduction. Such drawings and Specifications are not to be used on other Work and those sets in usable condition shall be returned to the OWNER upon request at the completion of cessation of the Work or termination of the Contract.

The CONTRACTOR shall keep one (1) copy of the drawings and Specifications at the Work site at all times and shall give the OWNER, and their representatives, access thereto. Anything on the drawings and not mentioned in the Specifications, or anything in the Specifications that is not shown on the drawings shall have the same force and effect as if mentioned in both. In case of conflict or inconsistency between the drawings and the Specifications, the Specifications shall take precedence. Any discrepancy in the figures and the drawings shall be immediately submitted to the OWNER for decision and the decision of the OWNER shall be final. In case of differences between small and large scale drawings, the large scale drawings shall take precedence.

ARTICLE 57:            SUSPENSION OF WORK

- a. The OWNER may order the CONTRACTOR in writing to suspend, delay, or interrupt all or any part of the Work for such period of time as he may determine to be appropriate for the convenience of the OWNER.
- b. If the performance of all or any part of the Work is, for an unreasonable period of time, suspended, delayed, or interrupted by an act of the OWNER in administration of this Contract, or by his failure to act within the time specified in this Contract (or if no time is specified, within a reasonable time), an adjustment shall be made for any increase in the cost of performance of this Contract (excluding profit) necessarily caused by such unreasonable suspension, delay, or interruption and the Contract modified in writing accordingly.

However, no adjustment shall be made under this clause for any suspension, delay, or

interruption to the extent (1) that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the CONTRACTOR or (2) for which an equitable adjustment is provided for or excluded under any other provision of this Contract.

- c. No claim under this clause shall be allowed (1) for any costs incurred more than twenty (20) days before the CONTRACTOR shall have notified the OWNER in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order), and (2) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of such suspension, delay, or interruption, but not later than the date of final payment under the Contract.

#### ARTICLE 58:            INSPECTION

The authorized representatives and agents of the OWNER shall be permitted to inspect all Work materials, payroll, records of personnel, invoices for materials, and other relevant data and records.

### **PART IV**

#### ARTICLE 59:            SUBCONTRACTORS

The CONTRACTOR may utilize the services of specialty subcontractors on those parts of the Work which, under normal contracting practices, are performed by specialty subcontractor.

The CONTRACTOR shall not award Work to any subcontractor other than those listed in his bid, without the prior written approval of the OWNER, which approval will not be given until the CONTRACTOR submits a written statement concerning the proposed award to the subcontractor, which statement shall contain such information as the OWNER may require.

The CONTRACTOR shall cause appropriate provisions to be inserted in all subcontracts relative to the Work, to bind the subcontractors to the Contract Documents insofar as applicable to the subcontractor Work and to give the CONTRACTOR the same power as regards to terminating any subcontract that the OWNER may exercise over the CONTRACTOR under any provisions of the Contract Documents.

Nothing contained in this Contract shall create any contractual relationship between the OWNER and any subcontractor.

#### ARTICLE 60:            MUTUAL RESPONSIBILITY OF CONTRACTORS

If, through acts of neglect on the part of the CONTRACTOR, any other contractor or any subcontractor shall suffer loss or damage to the Work, the CONTRACTOR agrees to settle with such other contractor or subcontractor by agreement or arbitration. If such other contractor or subcontractor shall assert any claim against the OWNER on account of any damage alleged to have been sustained, the OWNER shall notify the CONTRACTOR who shall indemnify and save

harmless the OWNER against any such claim.

ARTICLE 61:            ASSIGNMENTS

The CONTRACTOR shall not assign the whole or any part of this Contract or any monies due or to become due hereunder without the written consent of the OWNER. In case the CONTRACTOR assigns all or part of any monies due or to become due under this Contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any monies due or to become due to the CONTRACTOR shall be subject to prior claims of all persons, firms, or corporations for services rendered or materials supplied for the performance of the Work called for in this Contract.

ARTICLE 62:            SEPARATE CONTRACTS

The OWNER reserves the right to let other contracts in connection with the construction of the contemplated Work of the Project, or continuous Projects of the OWNER. The CONTRACTOR, therefore, will afford to any such other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their Work, will properly connect and coordinate his Work with theirs, and will not commit or permit any act which will interfere with the performance of their Work.

The CONTRACTOR shall coordinate his operations with those of other contractors. Cooperation will be required in the arrangement for storage of materials and in the detailed execution of the Work. Failure by the CONTRACTOR to keep informed on the progress of defective workmanship by others, shall be construed as acceptance by him of the status of the Work as being satisfactory for proper coordination with and performance of his own Work.

ARTICLE 63:            WORK BY OTHERS

The OWNER reserves the right to do any other Work which may be connected with, or become a part of, or be adjacent to the Work embraced by this Contract, at any time, by Contract or otherwise. The CONTRACTOR shall not interfere with the Work of such others as the OWNER may employ, and shall execute his own Work in such a manner as to aid in the execution of the Work of others as may be required. No backfilling of trenches or excavations will be permitted until such Work by the OWNER is completed.

**PART V**

ARTICLE 64:            WAGE UNDERPAYMENT AND ADJUSTMENTS

The CONTRACTOR agrees that in case of underpayment of wages to any worker on the Project under this Contract by the CONTRACTOR or any of his subcontractors, the OWNER will withhold from the CONTRACTOR out of payments due to him, an amount sufficient to pay such worker the difference between the wages required to be paid under this Contract and the wages actually paid such worker for the total number of hours worked, and that the OWNER may

disburse such amount so withheld by it for and on account of the CONTRACTOR to the employee to whom such amount is due. The CONTRACTOR further agrees that the amount withheld pursuant to this article may be in addition to the percentage to be retained by the OWNER pursuant to other provisions of this Contract.

ARTICLE 65:            PAYMENT OF EMPLOYEES

The CONTRACTOR and each of his subcontractors shall pay each of their employees engaged in the Work on the Project under this Contract in full, by check, and not less than once a week, less legally required reductions.

ARTICLE 66:            NON-DISCRIMINATION IN EMPLOYMENT

In connection with the performance of the Work under this Contract, the CONTRACTOR agrees not to discriminate against employee because of sex, race, religion, color, or national origin. The aforesaid provisions shall include but not be limited to the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rate of pay or other forms of compensation and selection for training, including apprenticeship.

ARTICLE 67:            APPRENTICES

Apprentices shall be permitted to Work only under a bona fide apprenticeship program registered with a State Apprenticeship Council which is recognized by the Federal Committee on Apprenticeship, United State Department of Labor; or if no such Council exists in a State, under a program registered with the Bureau of Apprenticeship, United State Department of Labor.

**PART VI**

ARTICLE 68:            SHOP OR SETTING DRAWINGS

- a. The CONTRACTOR shall submit promptly to the OWNER six (6) copies of each shop or setting drawing prepared in accordance with a schedule predetermined by the CONTRACTOR. After examination of such drawings by the OWNER, and the return thereof, if resubmission is required, the CONTRACTOR shall make such corrections to the drawings as have been indicated and shall furnish the OWNER with six (6) corrected copies. Regardless of corrections made in or approval given to such drawings by the OWNER, the CONTRACTOR will, nevertheless, be responsible for the accuracy of such drawings and for their conformity to the drawings and Specifications, unless he notifies the OWNER in writing of any deviations at the time he furnishes the drawings.
- b. Shop drawings of all fabricated Work shall be submitted to the OWNER for approval and no Work shall be fabricated by the CONTRACTOR save at his own risk until approval has been given by the OWNER. The Special Conditions define the shop drawings required for this Project.

- c. The CONTRACTOR shall submit all shop and setting drawings on dates sufficiently in advance of requirements to enable the OWNER ample time for reviewing the same, including time for correcting, resubmission and reviewing, if necessary, and no claim for delay will be granted the CONTRACTOR by reason of his failure in this respect.
- d. All shop drawings submitted must bear the stamp of the CONTRACTOR as evidence that the drawings have been checked by him. Any drawings submitted without this stamp of approval will not be considered and will be returned to the CONTRACTOR for resubmissions. If the shop drawings show deviations from the requirements of the Contract Documents because of standard shop practice or other reason, the CONTRACTOR shall make specific mention of such variation in his letter of transmittal to the OWNER, in order that an acceptable, suitable action may be taken for proper adjustment; otherwise the CONTRACTOR will not be relieved of the responsibility for executing the Work in accordance with the Contract Documents even though the shop drawings have been approved.
- e. Where shop drawings are submitted by the CONTRACTOR that indicate a departure from the Contract which the OWNER deems to be a minor adjustment in his interest and not involving a change in the Contract Price or extension of time, the OWNER may approve the drawings but the approval will contain in substance, the following:

"The modification shown on the attached drawings is approved in the interest of the OWNER to effect an improvement for the Project and is ordered with the understanding that it does not involve any change in the Contract Price or an extension of time that it is subject generally to all Contract stipulations and covenants; and that it is without prejudice to any rights of the OWNER under the Contract and bond or bonds."

- f. The approval of the shop drawings will be general and shall not relieve the CONTRACTOR from the responsibility for adherence to the Contract, for any error which may exist.
- g. The CONTRACTOR agrees to hold the Engineer and the OWNER harmless and defend them against damages or claims for damages arising out of injury to others or property of third persons which result from errors on shop, working, or setting drawings whether or not they have been approved by the Engineer and/or the OWNER.

ARTICLE 69:                      WORK TO BE ACCOMPLISHED IN ACCORDANCE WITH THE  
DRAWINGS AND SPECIFICATIONS

The Work, during its progress and at its completion, shall conform to the lines and grades shown on the drawings and to the directions given by the OWNER from time to time, subject to such modifications or additions as he shall determine to be necessary during execution of the Work; and in no case will any Work be paid for in excess of such requirements. The Work shall also be accomplished in accordance with the data in these Specifications.



ARTICLE 70:                    CONTRACTOR TO CHECK DIMENSIONS AND SCHEDULES

The CONTRACTOR will be required to check all dimensions and quantities shown on the drawings or schedules given to him by the OWNER, and shall notify the OWNER of all errors therein which he may discover by examining and checking the same. The CONTRACTOR shall not take advantage of any error or omissions in furnishing all instructions, should such error or omissions be discovered, and the CONTRACTOR shall carry out such instructions as if originally specified.

ARTICLE 71:                    PLANIMETER

For estimating quantities in which the computation of areas by analytic and geometric methods would be comparatively laborious, it is stipulated and agreed that the planimeter shall be considered an instrument of precision adapted to the measurement of such areas.

ARTICLE 72:                    ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS

The CONTRACTOR will be furnished additional instructions and detail drawings as necessary to carry out the Work included in the Contract. The additional drawings and instruction thus supplied to the CONTRACTOR will coordinate with the Contract Documents and will be so prepared that they can be reasonably interpreted as part thereof. The CONTRACTOR shall carry out the Work in accordance with the additional detail drawings and instructions. The CONTRACTOR and the OWNER will prepare jointly a schedule fixing the respective dates for the submission of shop drawings, the beginning of manufacturing, testing, and installation of materials, supplies and equipment, and the completion of the various parts of the Work; each schedule to be subject to change from time to time in accordance with the progress of the Work.

ARTICLE 73:                    MATERIALS, SERVICES, AND FACILITIES

It is understood that, except as otherwise specifically stated in the Contract Documents, the CONTRACTOR shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, superintendence, temporary construction of every nature, and all other services and facilities of every nature whatsoever, necessary to protect, execute, complete, and deliver the Work within the specified time.

If approved by the OWNER, any Work necessary to be performed after regular hours, on Saturdays, Sundays, or legal holidays, shall be performed by the CONTRACTOR without additional expense to the OWNER.

ARTICLE 74:                    CONTRACTOR'S TITLE TO MATERIALS

No material, supplies, or equipment for the Work shall be purchased by the CONTRACTOR or any subcontractor, subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein or in any part thereof is retained by the seller or supplier. The CONTRACTOR warrants good title to all material, supplies, and equipment installed or incorporated in the Work and further warrants upon completion of all Work, to deliver the

premises, together with all improvements and appurtenances constructed or placed thereon by him, to the OWNER free from any claims, liens, or charges, or encumbrances and further agrees that neither he nor any person, firm, or corporation furnishing any material or labor or any Work covered by this Contract shall have the right to a lien upon the premises or any improvement or appurtenance thereon.

#### ARTICLE 75:            INSPECTION AND TESTING OF MATERIALS

All materials and equipment used in the construction of the Project shall be new and of current manufacture. Testing will be done in accordance with accepted standards and as directed by the OWNER; the laboratory or inspection agency shall be selected by the OWNER. Except as specified elsewhere in these Specifications, the OWNER will pay for laboratory inspection.

All materials and workmanship shall be subject to inspection, examination, and testing by the OWNER at any and all times during manufacture and/or construction, to establish conformance with these Specifications and suitability for uses intended. Without additional charge, the CONTRACTOR shall furnish promptly all reasonable facilities, labor, and materials necessary to make tests so required safe and convenient. He shall also furnish mill, factory, or other such tests based on the Standards and Tentative Standards of the American Society for Testing Materials as required by the OWNER.

#### ARTICLE 76:            DEFECTIVE MATERIALS

No materials shall be laid or used which are known, or may be found to be in any way defective. Any materials found to be defective at the site of Work or upon installation shall be replaced by the CONTRACTOR at his own expense. Notice shall be given to the OWNER of any defective or imperfect material. Defective or unfit material found to have been laid, shall be removed and replaced by the CONTRACTOR with sound and unobjectionable material, without additional cost to the OWNER.

#### ARTICLE 77:            PATENTS

- a. The CONTRACTOR shall hold and save the OWNER harmless from liability of any nature or kind, including cost and expenses for, or on account of, any patented or unpatented invention, process, article, or appliance manufactured or used in the Contract, including its use by the OWNER.
- b. License and/or royalty fees for the use of a process which is authorized by the OWNER must be reasonable, and paid to the holder of the patent, or his authorized agent, directly by the CONTRACTOR.
- c. If the CONTRACTOR uses any design, device or material covered by letters, patent, or copyright, he shall provide for such use by suitable agreement with the OWNER or such patent or copyrighted design, device, or material.
- d. It is mutually agreed and understood that, without exception, the Contract Price shall

ARTICLE 78: "OR APPROVED EQUAL" CLAUSE

- ## PART VII

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coverage shall in no way limit the liability of the CONTRACTOR to any such kinds and amounts of insurance coverage. All policies issued shall indemnify and save harmless the OWNER, the Engineer, and their agents or representatives from any and all claims for damages arising out of the Contract, to either persons or property.

Policies and certificates of all insurance shall be submitted to the OWNER by the CONTRACTOR in sextuplicate (6 copies) prior to preparation of the construction Contract. In the event that the form of any policy or amount or insurance company writing same is not satisfactory to the OWNER, the CONTRACTOR shall re-submit all required items to the OWNER prior to the signing of the Contract. This requirement to re-submit shall not automatically extend the time limit specified elsewhere in these documents for the submittal of required items. The CONTRACTOR shall not cause policies to be canceled or permit them to lapse, and all insurance policies shall include a clause to the effect that the policy shall not be subject to cancellation or a reduction in the required limits of liability amounts of insurance until notice has been sent by registered mail to the OWNER, stating when, not less than ten (10) days thereafter, such cancellation or reduction shall be effective. All certificates of insurance shall contain true transcripts from the policy, authenticated by the proper officer of the insurer evidencing in particular, those insured, the extent of the insurance, the location and operations to which the insurance applies, the expiration date, and the above-mentioned notice of cancellation clause.

The CONTRACTOR shall be responsible for the provision of identical insurance coverage for all his subcontract operations and, in the event that the CONTRACTOR'S policies do not cover each and every subcontractor, certificates of insurance issued on policies by companies that are acceptable to the OWNER covering each and every subcontractor shall be filed under the OWNER in sextuplicate (6 copies) prior to the commencement of such subcontract operations. All insurance specified in this Contract shall be provided by the CONTRACTOR, at no additional expense to the OWNER.

## **PART VIII**

### **ARTICLE 80:           COMPENSATION TO BE PAID TO THE CONTRACTOR**

- a. The OWNER will pay and the CONTRACTOR shall receive as full compensation for everything furnished and one by the CONTRACTOR under this Contract, the unit prices and lump sum prices set opposite the respective items in the accepted bid form herein contained, and payment for approved extra Work. The cost of all Work required not specifically included in any items herein mentioned, and also for all loss or damage arising out of the nature of the Work aforesaid or from the action of the elements, or from any unforeseen obstruction or difficulty encountered in the prosecution of the Work and for all risks of every description connected with the Work, and for all expenses incurred by or in consequence of the suspension or discontinuance of the Work as herein specified, and for assuming all duties, and liabilities, herein required, and for well and faithfully completing the Work, and the whole thereof, as herein provided, shall be the responsibility of the CONTRACTOR.

- b. The amount of the Contract (accepted bid price/prices) listed in the bid is based on the estimated quantities and the unit and/or lump sum price as set forth in the bid. It is understood and agreed that the CONTRACTOR will accept as payment the actual measured quantities at the unit and/or lump sum price as set forth in the accepted bid.
- c. The estimated quantities given in the bid proposal for the various items of Work are given for the purpose of comparing the bids offered for the Work under this Contract and if it is found in the performance of the Contract Work that any or all of the said estimated quantities are not even approximately correct, the CONTRACTOR shall have no claim for anticipated profits, or for loss of profit, or for increase in prices as listed in the accepted bid because of the difference between the quantities of the various items of Work actually done and the estimated quantities stated in the accepted bid.
- d. No payment or compensation will be made to the CONTRACTOR for damages because of hindrance or delay from any cause in the progress of the Work, whether such hindrances or delays be avoidable or unavoidable.

ARTICLE 81:            PAYMENTS TO CONTRACTOR

- a. At least ten (10) days before each progress payment falls due (but not more often than once a month), the CONTRACTOR shall submit to the OWNER a partial payment estimate filled out and signed by the CONTRACTOR covering the Work performed during the period covered by the partial payment estimate and supported by such data as the OWNER may reasonably require. If payment is requested with the OWNER'S permission of the basis of materials and equipment not incorporated in the Work, but delivered and suitably stored at or near the site, in accordance with the manufacturer's recommendation and as required by the OWNER, the partial payment estimate shall also be accompanied by such supporting data satisfactory to the OWNER, as will establish the OWNER'S title to the material and equipment applicable insurance. The OWNER will within ten (10) days after receipt of each partial payment estimate, either indicate in writing his approval, or return the partial payment estimate to the CONTRACTOR indicating in writing his reasons for refusing to approve payment. In the latter case, the CONTRACTOR may make the necessary corrections and resubmit the partial payment estimate. The OWNER will within thirty (30) days of presentation to him of an approved partial payment estimate, pay the CONTRACTOR a progress payment on the basis of the approved partial payment estimate. The OWNER shall retain ten (10) percent of the amount of each payment, plus any additional percent which is specified in these documents.
- b. The retainage shall remain at ten percent (10%) until sixty-five percent (65%) of the Contract is complete. At that time, if the OWNER decides the CONTRACTOR is making adequate progress, the OWNER may reduce retainage to five percent (5 %). Any further reduction will be at the OWNER'S discretion. At no time shall retainage be reduced below two percent (2%), until completion of the one-year General Guarantee period.



indicated to be a Change Order, make any change in the Work within the general scope of this Contract, including but not limited to changes:

1. In the Specifications (including drawings and design);
  2. In the method or manner of performance of the Work;
  3. In the OWNER-furnished facilities, equipments, materials, services or site; or
  4. Directing acceleration in the performance of the Work.
- b. Any other written order or an oral order (which terms as used in this paragraph (b) shall include direction, instruction, interpretation or determination) from the OWNER, which causes any such change, shall be treated as a Change Order under this clause, provided that the CONTRACTOR gives the OWNER written notice stating the date, circumstances, and source of the order and that the CONTRACTOR regards the order as a Change Order.
- c. Except as herein provided, no order, statement, or conduct of the OWNER shall be treated as a change under this clause or entitle the CONTRACTOR to an equitable adjustment hereunder.
- d. If any change, by Change Order, causes an increase or decrease in the CONTRACTOR' S cost of, or the time required for, the performance of any part of the Work under this Contract, an equitable adjustment shall be made and the Contract modified in writing accordingly: provided; however, that no claim for any Change Order (b) above shall be allowed for any costs incurred more than twenty (20) days before the CONTRACTOR gives written notice as therein required: and, provided further, that in case of defective Specifications for which the OWNER is responsible, the equitable adjustment shall include only increased cost reasonably incurred by the CONTRACTOR in attempting to comply with such defective Specifications.
- e. If the CONTRACTOR intends to assert a claim for an equitable adjustment under this clause, he must, within thirty (30) days after receipt of a written Change Order under (a) above or the furnishing of a written notice under (b) above, submit to the OWNER a written statement setting forth the general nature and monetary extent of such claim, unless this period is extended by the OWNER. The statement of claim hereunder may be included in the notice under (b) above.
- f. No claim by the CONTRACTOR for an equitable adjustment hereunder for any amount shall be allowed unless agreed to by Change Order prior to the Work being done.

ARTICLE 83:                    CHANGES IN THE WORK

No changes in the Work covered by the approved Contract Documents shall be made without having prior written approval of the OWNER. Charges or credits for the Work covered by the approved changes shall be determined by one or more, or a combination of the following methods as the OWNER shall direct:

- a. Unit price bid previously approved;

- b. The actual cost of labor, materials, ownership or rental costs of construction plant and equipment during the use of item on the extra Work; power and consumable supplies for the operation of power and equipment;
- c. Insurance; and
- d. Social Security, Old Age, and Unemployment contributions.

To the cost of "b" above, there shall be added a fixed fee to be agreed upon but not to exceed 10%. The fee shall be compensation to cover the cost of supervision, overhead, bonds, profits, and any other general expenses.

If a subcontractor performs the Work, he shall be entitled to a maximum of 10% as a fixed fee, and the general CONTRACTOR be entitled to a maximum of 5% (of the cost of the subcontract work excluding subcontractor fixed fee) as a fixed fee.

#### ARTICLE 84: CLAIMS FOR EXTRA COST

No claims for extra Work or cost will be allowed unless the same were done in pursuance of a written order of the OWNER as aforesaid, and the claim presented with the first estimate after the changed or extra Work is done. When the Work is performed under terms specified elsewhere in the Contract, the CONTRACTOR shall furnish satisfactory bills, payrolls, and vouchers covering all items of cost and upon the OWNER'S request, give him full access to the accounts relating thereto.

#### ARTICLE 85: CHANGES AND MODIFICATIONS

The OWNER reserves the right to delete or cancel any item or items or parts thereof as listed in the bid, without recourse by the CONTRACTOR. The OWNER also reserves the right to add to any item as listed in the bid. The compensation to be paid to the CONTRACTOR for such additional extensions, appurtenances, or items shall be made under the applicable items in the bid. If no applicable items are provided in the bid, the compensation to be paid the CONTRACTOR shall be set forth under the article entitled "Changes In The Work" as found herein.

#### ARTICLE 86: ACCEPTANCE OF THE FINAL PAYMENT CONSTITUTES RELEASE

The acceptance of the Final Payment by the CONTRACTOR shall be and shall operate as a release to the OWNER for all claims and all liability to the CONTRACTOR for all things done or furnished in connection with this Work and for every act or neglect of the OWNER and others relating to or arising out of this Work. No payment, however, final or otherwise, shall operate as a release of the CONTRACTOR or his Surety from any obligations under this Contract.

### **END OF DOCUMENT** **INDEX TO THE SPECIAL CONDITIONS**



ARTICLE NO.

TITLE

87	ENUMERATION OF DRAWINGS, SPECIFICATIONS AND ADDENDA
88	SUBSURFACE DATA
89	EXISTING UTILITIES AND CONNECTIONS
90	INTERFERENCE WITH EXISTING STRUCTURES
91	REMOVAL OF WATER AND PROTECTION FROM FLOODING
92	PROTECTION OF TREES
93	PROVISION FOR FLOW OF PRESENT DRAINAGE
94	POLLUTION OF WATERS
95	TURF, TOPSOIL, AND OTHER REPLACED ITEMS
96	RESERVED MATERIALS
97	CLEANING FINISHED WORK
98	FIRE AND POLICE NOTIFICATION
99	STREETS AND SIDEWALKS TO BE KEPT OPEN
100	BLASTING
101	INSURANCE
102	REMEDIES
103	REQUIRED SUBMITTALS
104	DRAWINGS AND SPECIFICATIONS FURNISHED

ARTICLE 1:      ENUMERATION OF DRAWINGS, SPECIFICATIONS AND ADDENDA

The following are the Drawings, Specifications, and Addenda which form a part of this Contract, as set forth in Article 1 of the General Conditions of these Contract Documents.

- a.      DRAWINGS:
- b.      GENERAL CONDITIONS
- c.      SPECIAL CONDITIONS
- d.      TECHNICAL SPECIFICATIONS
- e.      ADDENDA

No.	Dated:
No.	Dated:
No.	Dated:
No.	Dated:

ARTICLE 2:      SUBSURFACE DATA

Borings have been performed and results will be provided upon request. Each bidder is expected to examine the site and then, based on his own inspection, interpretations, and such other investigations as he may desire, decide for himself the character of the materials to be used for backfilling and such other purposes; groundwater conditions; difficulties or obstacles likely to be encountered; and other conditions affecting the Work.

ARTICLE 3:      EXISTING UTILITIES OR CONNECTIONS

The location of existing underground pipes, conduits, and structures as shown has been collected from the best available sources, and the OWNER, together with his agents, does not imply or guarantee the data and information in connection with underground pipes, conduits, structures, and such other parts, as to their completeness, nor their locations as indicated. The CONTRACTOR shall assume that there are existing water, gas and other utility connections to each and every building en route, whether they appear on the drawings or not. Any expense and/or delay occasioned by utilities and structures or damage thereto, including those not shown, shall be the responsibility of the CONTRACTOR, at no additional expense to the OWNER.

Before proceeding with construction operations, the CONTRACTOR shall make such supplemental investigations, including exploratory excavations by hand digging, as he deems necessary to uncover and determine the exact locations of utilities and structures and shall have no claims for damages due to encountering subsurface structures or utilities in locations other than those shown on the drawings, or which are made known to the CONTRACTOR prior to construction operations. The CONTRACTOR shall be responsible and liable for all damages to existing utilities and structures.

#### ARTICLE 4:                    INTERFERENCE WITH EXISTING STRUCTURES

Whenever it may be necessary to cross or interfere with existing culverts, drains, sewers, water pipes, fixtures, guardrails, fences, gas pipes, or other structures needing special care, due notice shall be given to the OWNER, and the Work shall be done according to his directions. Whenever required, all objects shall be strengthened to meet any additional stress that the Work herein specified may impose upon it, and any damage caused shall be thoroughly repaired. If so directed by the OWNER, the location of any existing Work shall be changed to meet the requirements of the new utilities or appurtenances or the utilities system may be relocated, if necessary to leave all in good working order. The entire Work shall be performed at no expense to the OWNER.

The CONTRACTOR shall be responsible for all broken mains or utilities encountered during the progress of the Work and shall repair and be responsible for correcting all damages to existing utilities and structures at no additional cost to the OWNER. The CONTRACTOR shall contact the proper utility or authority to correct or make any changes due to utilities or other obstructions during the Work or construction of the utilities system, but the entire responsibility and expense shall be with the CONTRACTOR, except as otherwise specified herein.

All damaged items of Work or items required to be removed and replaced due to construction shall be replaced or repaired by the CONTRACTOR to the complete satisfaction of the property OWNER and/or the OWNER, and at no additional expense to the OWNER.

#### ARTICLE 5:                    REMOVAL OF WATER AND PROTECTION FROM FLOODING

The excavations for pipelines, structures, and appurtenant Work required under this Contract are to some extent below existing groundwater levels. The CONTRACTOR shall construct and maintain all pumps, drains, wellpoints or any other facilities for the control, collection, and disposal of groundwater or surface and subsurface water encountered in the performance of the Contract Work and provide all pumps, piping, and ditching for the removal of water from the trenches and excavations so that all trenches and excavations may be kept free from water at all times and so that the Work under this Contract may be performed in the dry. Any damage to existing Work or to the Contract Work resulting from the failure of the CONTRACTOR'S dewatering operations, shall be repaired by the CONTRACTOR, as directed by the OWNER, at no additional expense to the OWNER. The CONTRACTOR'S dewatering and pumping operations shall be carried out in such a manner that no loss of ground will result from these operations. Precautions shall be taken to protect new and existing Work from flooding or damage during storms or other causes. Pumping shall be continuous where directed and necessary to protect the Work and to maintain satisfactory progress. All pipelines or structures not stable against uplift during construction or prior to completion shall be thoroughly braced or otherwise protected. Water from the trenches, excavations, and drainage operations shall be disposed of in such a manner as will neither cause injury to public health or private property, nor to the Work completed or in progress. Dewatering of excavations shall be accomplished by methods which have been approved, prior to commencement of Work, by the OWNER and which have a background of successful dewatering of excavations of the type employed for the Work. The CONTRACTOR shall construct ditches, do all grading, and do all other Work as may be necessary to divert and exclude surface water and water from dewatering operations from

excavation and Work areas.

ARTICLE 6:            PROTECTION OF TREES

The CONTRACTOR shall take special care to preserve and protect from injury all trees located along the lines of construction, and no such trees shall be cut down, trimmed, or otherwise cut without permission from the OWNER.

ARTICLE 7:            PROVISION FOR FLOW OF PRESENT DRAINAGE

Provision for the flow in all sewers, drains, and water courses that are met or altered during the construction shall be provided by the CONTRACTOR and all connections shall be restored without extra charge. All offensive matter shall be removed immediately with such precautions as may be directed. If required, the CONTRACTOR shall install temporary bypass connections for sewer, drains, and water facilities to provide uninterrupted or continuous service during the Work or construction.

ARTICLE 8:            POLLUTION OF WATERS

Special care shall be taken to prevent contamination of muddying up or interfering in any way with the stream flows, if any, along the line of Work. No waste matter of any kind will be allowed to discharge into the stream flows or impounded water of any pools or other bodies of water.

ARTICLE 9:            TURF, TOPSOIL, AND OTHER REPLACED ITEMS

Where the system is constructed through cultivated or sodded lands, the CONTRACTOR shall save the turf and topsoil separately and replace the same after the trench is filled, leaving the land as nearly as possible in its original condition. Trees, fences, walls, walks, mailboxes, and such other items must not be damaged.

ARTICLE 10:           RESERVED MATERIALS

Materials found on the Work site suitable for any special use, shall be preserved for that purpose. Where permitted, the CONTRACTOR may use in the various parts of the Work, without charge, any materials taken from the excavation.

ARTICLE 11:           CLEANING FINISHED WORK

After the Work is completed, the pipes and structures shall be carefully cleaned free of debris and dirt, broken masonry, and mortar, and left in first class condition, ready to use. All temporary or excess materials shall be disposed of off-site and the Work left broom-clean, to the satisfaction of the OWNER.

ARTICLE 12:            FIRE AND POLICE NOTIFICATION

If it becomes necessary at any time to temporarily barricade a street or cause detours to be put up, or rerouting of traffic, the Fire and Police Departments shall be notified by the CONTRACTOR, and their consent obtained before any such action is initiated.

ARTICLE 13:            STREETS AND SIDEWALKS TO BE KEPT OPEN

The CONTRACTOR shall at all times keep the streets and highways in which he may be working open for pedestrian and vehicular traffic. If in the opinion of the OWNER, the interest of abutters and the public requires it, the CONTRACTOR shall bridge or construct planking across trenches at street crossings and roads or private ways. The CONTRACTOR shall conduct his Work in such a manner as the OWNER may direct from time to time. No sidewalk shall be obstructed where it is possible to avoid it.

The CONTRACTOR shall provide all necessary fire crossings at principal intersections or ways usually traveled by fire apparatus with provisions for the apparatus so it can travel along the line of the pipe installations.

ARTICLE 14:            BLASTING

Blasting is NOT permitted for this project.

ARTICLE 15:            INSURANCE

The CONTRACTOR shall provide the following insurances in accordance with the General Conditions:

A.    Workmen's Compensation Insurance

The CONTRACTOR shall provide adequate statutory Workmen's Compensation Insurance for all labor employed on the Project who may come within the protection of such laws and shall provide Employer's General Liability Insurance in the amount of \$100,000 for the benefit of his employees not protected by such compensation laws.

B.    Contractor's Comprehensive Public Liability and Property Damage Liability Insurance

The CONTRACTOR shall carry Comprehensive General Liability Insurance with broad form of Contractual General Liability Endorsement attached, providing for a limit of not less than One Million Dollars (\$1,000,000.00) for all damages arising out of bodily injuries to or death of one (1) person, and subject to that limit for each person, a total limit of not less than Two Million Dollars (\$2,000,000.00) for all damages arising out of bodily injuries to or the death of two (2) or more persons in any one accident; and Contractor's Comprehensive Property Damage Liability Insurance providing for a limit of not less than One Million Dollars (\$1,000,000.00) for all damages arising out of injury to or destruction

of property in any one accident; and subject to a limit of not less than Two Million Dollars (\$2,000,000.00) for all damages arising out of injury to or destruction of property during the policy period.

C. Owner's Protective Liability And Property Damage Insurance

The CONTRACTOR shall provide the OWNER an insurance policy written in the name of the OWNER, its employees, servants and agents, and extended to include the interests of the Engineer, its employees, and agents; to protect the OWNER and the Engineer from any liability which might be incurred against them as a result of any operations of the CONTRACTOR or his subcontractors, or their employees. Such insurance shall provide for a limit of not less than One Million Dollars (\$1,000,000.00) for all damages arising out of bodily injuries to or the death of any one (1) person, and subject to that limit for each person, a total limit of not less than Two Million Dollars (\$2,000,000.00) for all damages arising out of bodily injuries to or the death of two (2) or more persons in any one accident; and a limit of not less than One Million Dollars (\$1,000,000.00) for all damages arising out of injury to or destruction of property in any one accident, and subject to a limit of not less than Two Million Dollars (\$2,000,000.00) for all damages arising out of injury to or destruction of property during the policy period.

D. Comprehensive Automobile Liability and Property Damage Insurance

The CONTRACTOR shall carry Comprehensive Automobile Liability Insurance covering all owned vehicles, hired vehicles, or non-owned vehicles in the amount of not less than One Million Dollars (\$1,000,000.00) for all damages arising out of bodily injuries to or the death of any one (1) person; and subject to that limit for each person a total of not less than Two Million Dollars (\$2,000,000.00) for all damages arising out of bodily injuries to or the death of two (2) or more persons in any one accident; and Property Damage coverage in the amount of not less than One Million Dollars (\$1,000,000.00) for all damages arising out of injury to or destruction of property.

E. Insurance Covering Special Hazards

Special hazards shall be covered by rider or riders to the Public Liability Insurance and Property Damage Insurance policy or policies hereinabove required to be furnished by the CONTRACTOR, or by separate policies of insurance as follows:

1. Property Damage Liability arising out of the collapse of, or structural injury to any building or structure due to excavation (including borrowing, filling, or backfilling in connection therewith), tunneling, pile driving, cofferdam work, or caisson work; or to moving, shoring, underpinning, razing, or demolition of any building or structure, or removal or rebuilding of any structural support thereof.
2. Property Damage Liability for injury to or destruction of property arising directly or indirectly from blasting or explosions, however caused, other than pressure,

prime movers, machinery or power-transmitting equipment.

3. Property Damage Liability for injury or destruction of wires, conduits, pipes, mains, sewers, or other similar property or any apparatus in connection therewith, below the surface of the ground, arising from and during the use of mechanical equipment for the purpose of excavating or drilling within the Project limits; injury to or destruction of property at any time resulting therefrom.
4. The CONTRACTOR shall require similar insurance in such amounts to be taken out and maintained by each subcontractor.

F. Fire Insurance

During the progress of Work, the CONTRACTOR shall effect and maintain BUILDERS'S RISK INSURANCE ON COMPLETED VALUE FORM against loss by fire, lightning, windstorm, hurricane, cyclone, tornado, hail, explosion, riot, riot attending strike, aircraft, smoke and vehicle damage, vandalism, and malicious mischief upon all Work in place and all material stored at the building site, whether or not covered by partial payments made by the OWNER. This insurance shall be in an amount equal to 100 percent (100%) of the insurable portion of the Project and shall be for the benefit of the OWNER, the CONTRACTOR, and each subcontractor, as their interest may respectively appear.

If there are any existing adjacent or adjoining structures presently used by the OWNER, the risk of the existing adjacent or adjoining structures will be by the OWNER.

ARTICLE 16:        REMEDIES

Except as may be otherwise provided in this Contract, all claims, counterclaims, disputes and other matters in question between the OWNER and the CONTRACTOR arising out of or relating to this agreement or the breach thereof will be decided by a court of competent jurisdiction within the State in which the OWNER is located.

ARTICLE 17:        REQUIRED SUBMITTALS

The following submittals shall be made in accordance with Section 01 33 00, Submittal Procedures.

ARTICLE 18:        DRAWINGS AND SPECIFICATIONS FURNISHED

The Engineer shall furnish, at no additional cost to the successful bidder, one executed contract set of drawings and specifications, two (2) copies of the specifications and drawings. All additional copies of the drawings and/or specifications shall be furnished to the contractor at the contractor's expense.

**END OF DOCUMENT**

## DOCUMENT 01 33 00 SUBMITTAL PROCEDURES

### PART 1- GENERAL

#### 1. SECTION INCLUDES

- 1.1. Schedule of Proposed Shop Drawing Transmittals.
- 1.2. Submittal Procedures.
- 1.3. Shop Drawings.
- 1.4. Construction Progress Schedule.
- 1.5. Proposed Products List.
- 1.6. Product Data.
- 1.7. Samples.
- 1.8. Manufacturer's Instructions.
- 1.9. Manufacturer's Certificates.
- 1.10. Shop and Mill Test Reports.

#### 2. RELATED SECTIONS

00 70 00 General Conditions

#### 3. SCHEDULE OF PROPOSED SHOP DRAWING TRANSMITTALS

- 3.1. Within 5 days after the date of the execution of the Contract Documents submit a schedule of proposed shop drawing transmittals. The schedule shall identify the subject matter of each transmittal, the corresponding specification section number and the proposed date of submission. During the progress of the Work the schedule shall be revised and resubmitted as necessary.

#### 4. SUBMITTAL PROCEDURES

- 4.1. Transmit each submittal with the letter of transmittal form supplied by the Engineer.
- 4.2. Sequentially number the transmittal forms. Resubmittals to have original number with an



alphabetic suffix.

- 4.3. Identify Project, Contractor, Subcontractor or supplier, pertinent Drawing sheet and detail number(s), and specification Section number, as appropriate.
- 4.4. Apply Contractor's stamp, signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, as in accordance with the requirements of the Work and Contract Documents.
- 4.5. Schedule submittals to expedite the Project, and deliver to Engineer at business address. Coordinate submission of related items.
- 4.6. Identify variations from Contract Documents and Product or system limitations, which may be detrimental to successful performance of the completed Work.
- 4.7. Provide space for Contractor and Engineer review stamps.
- 4.8. Revise and resubmit submittals as required, identify all changes made since previous submittal.
- 4.9. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.

## 5. SHOP DRAWINGS

- 5.1. The Contractor shall be responsible for the prompt and timely submittal of all shop and working drawings so that there shall be no delay to the Work due to the absence of such drawings. All shop and working drawings must be submitted to the Engineer within 5 calendar days prior to incorporation into the Work, unless otherwise permitted by the Engineer.
- 5.2. No material or equipment shall be purchased or fabricated especially for the Contract until the required shop and working drawings have been submitted as hereinafter provided and reviewed for conformance to the Contract requirements. All such materials and equipment and the work involved in their installation or incorporation into the Work shall then be as shown in and represented by said drawings.
- 5.3. Until the necessary review has been made, the Contractor shall not proceed with any portion of the Work (such as the construction of foundations), the design or details of which are dependent upon the design or details of work, materials, equipment or other features for which review is required.
- 5.4. Submit a minimum of six copies of all (in reproducible transparency form unless otherwise specified) shop and working drawings of concrete reinforcement, structural details, piping layout, wiring, materials fabricated especially for the Contract, and

materials and equipment for which such drawings are specifically requested.

- 5.5. All shop and working drawings shall be submitted to the Engineer by and/or through the Contractor; who shall be responsible for obtaining shop and working drawings from his subcontractors and returning reviewed drawings to them. All shop and working drawings shall be prepared on standard size, 24 inch by 36 inch sheets, except those which are made by changing existing standard shop and working drawings. All drawings shall be clearly marked with the names of the Owner, Contractor, and building, equipment, or structure to which the drawing applies, and shall be suitably numbered.
- 5.6. Only drawings which have been checked and corrected by the fabricator should be submitted to the Contractor by his subcontractors and vendors. Prior to submitting drawings to the Engineer, the Contractor shall check thoroughly all such drawings to satisfy himself that the subject matter thereof conforms to the Drawings and Specifications in all respects. All drawings which are correct shall be stamped and signed or initialed as herein before specified and then submitted to the Engineer; other drawings shall be returned for correction.
- 5.7. If a shop drawing shows any deviation from the Contract requirements, the Contractor shall make specific mention of the deviations.
- 5.8. The Engineer will retain 3 copies and 3 copies will be returned to the Contractor. When resubmittals are returned to the Engineer, six copies of the complete submittal shall again be required.
- 5.9. Such drawings shall show the principal dimensions, weight, structural and operating features, space required, clearances, type and/or brand of finish or shop coat, grease fittings, etc., depending on the subject of the drawing. When it is customary to do so, when the dimensions are of particular importance, or when specified, the drawings shall be certified by the manufacturer or fabricator as correct for the Contract.
- 5.10. When so specified or if considered by the Engineer to be acceptable product data including manufacturer's specifications, catalog data, descriptive matter, illustrations, etc., may be submitted in place of shop and working drawings, insofar as applicable. Product data shall be as specified hereinafter.
- 5.11. The review of shop and working drawings hereunder will be general only, and nothing contained in this SPECIFICATION shall relieve, diminish or alter in any respect the responsibilities of the Contractor under the Contract Documents and in particular, the specific responsibility of the Contractor for details of design and dimensions necessary for proper fitting and construction of the work as required by the Contract and for achieving the result and performance specified thereunder.
- 5.12. Should the Contractor submit equipment that requires modifications to the structures, piping, electrical conduit, wires and appurtenances, layouts, etc detailed on the Drawings, he shall also submit details of the proposed modifications. If such equipment

and modifications are accepted, the Contractor, at no additional cost to the Owner, shall do the work necessary to make such modifications.

- 5.13. The marked-up reproducible of the shop and working drawings or the marked-up copies of catalog cuts will be returned to the Contractor. The Contractor shall furnish additional, copies of such drawings or catalog cuts when so requested.

## 6. CONSTRUCTION PROGRESS SCHEDULE

- 6.1. Submit initial progress schedule in triplicate within 5 days after date of execution of the Contract Documents for Engineer review.
- 6.2. Revise and resubmit as required.
- 6.3. Submit revised schedules with each Application for Payment, identifying changes since previous version.
- 6.4. Prepare schedules as a horizontal bar chart with separate bar for each major section of Work or operation identifying first work day each week.
- 6.5. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate dates for beginning and completion of each element, the early and late start, early and late finish, float dates, and duration.
- 6.6. Indicate estimated percentage of completion for each item of Work at each submission.
- 6.7. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates, including those furnished by Owner and under Allowances.
- 6.8. Before starting the Work, and from time to time during its progress, as the Engineer may request, the contractor shall submit to the Engineer a written description of the methods he intends to use in doing the Work and the various steps he intends to take.

## 7. PROPOSED PRODUCTS LIST

- 7.1. Within 5 days after date of execution of the Contract Documents submit complete list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- 7.2. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

## 8. PRODUCT DATA

- 8.1. Submit the number of copies which the Contractor requires, plus 3 copies which will be

retained by the Engineer.

8.2. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturer's data to provide information unique to this Project.

8.3. After review, distribute in accordance with Article on Procedures above.

## 9. SAMPLES

9.1. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

9.2. Submit samples of finishes from the full range of manufacturers' standard colors, textures and patterns for Engineer's selection.

9.3. Include identification on each sample, with full Project information.

9.4. Submit the number or samples specified in individual specification Sections; one of which will be retained by Engineer.

9.5. Reviewed samples which may be used in the Work are indicated in individual specification Sections.

## 10. MANUFACTURER'S INSTRUCTIONS

When specified in individual specification Sections, submit manufacturers printed instruction for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Shop Drawings.

10.1. Identify conflicts between manufacturers' instructions and Contract Documents.

## 11. MANUFACTURERS CERTIFICATES

11.1. When specified in individual specification Sections, submit manufacturers' certificate in triplicate to Engineer for review.

11.2. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference date, affidavits, and certifications as appropriate.

11.3. Certificates may be recent or previous test results on material or Product, but must be acceptable to Engineer.

## 12. SHOP AND MILL TEST REPORTS

- 12.1. When required by individual specification sections, furnish to the Engineer in triplicate, sworn copies of manufacturer's shop or mill tests (or reports from independent testing laboratories) relative to materials, equipment performance ratings, and concrete data.

**END OF DOCUMENT**

PART 1-GENERAL

1. SUMMARY

1.1. Section Includes

1.1.1. Qualification, duties and responsibilities of testing laboratories.

1.1.2. Coordination and scheduling responsibilities of the Contractor,

1.2. Related Sections

NONE

2. PAYMENT PROCEDURES

2.1. Initial Testing

2.1.1. The Contractor will pay for initial testing services required by the Engineer.

2.2. Retesting

2.2.1. When initial tests indicate noncompliance with the Contract Documents, subsequent retesting occasioned by the noncompliance shall be performed by the same testing agency, and costs thereof will be deducted by the Owner from the Contract Sum.

2.3. Contractors Convenience Testing

2.3.1. Inspecting and testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor.

3. REFERENCES

3.1. American Society for Testing and Materials (ASTM).

3.1.1. E-329-90, Use in the Evaluation of Testing and Inspection Agencies as Used in Construction.

#### 4. REQUIREMENTS

##### 4.1. Work included:

- 4.1.1. Cooperate with the Owner's selected testing agency and all others responsible for testing and inspecting the Work.
- 4.1.2. Provide other testing and inspecting as specified to be furnished by the Contractor in this Section and/or elsewhere in the Contract Documents.
- 4.1.3. Where no testing requirements are described, but the Owner directs testing, the Contractor shall provide testing under the requirements of this Specification.

##### 4.2. Work not included:

- 4.2.1. Selection of testing laboratory: The Owner will select a prequalified independent testing laboratory.

#### 5. QUALITY ASSURANCE

##### 5.1. Qualifications

- 5.1.1. The testing laboratory will be qualified to the Owner's approval in accordance with ASTM E329-90.

##### 5.2. Regulatory requirements

- 5.2.1. Testing, when required, will be in accordance with all pertinent codes and regulations and with selected standards of the American Society for Testing and Materials.
- 5.2.2. Regulatory Requirements Inspections and tests required by codes or ordinances, or by a plan approved authority, and which are made by a legally, constituted authority, shall be the responsibility of and shall be paid for by the Contractor, unless otherwise provided in the Contract Documents.

#### 6. DELIVERY, STORAGE, AND HANDLING

- 6.1. Promptly process and distribute, to the Engineer, required copies of test reports and instructions to assure necessary retesting and replacement of materials with the least possible delay in progress of the Work.

## 7. SCHEDULING

### 7.1. Establishing schedule

7.1.1. By advance discussion with the testing laboratory selected by the Owner, determine the time required for the laboratory to perform its tests and to issue each of its findings.

7.1.2. Provide all required time within the construction schedule.

7.1.3. Coordinate testing activity with the appropriate testing laboratory.

### 7.2. Revising schedule

7.2.1. When changes of construction schedule are necessary during construction, coordinate all such changes with the testing laboratory as required.

### 7.3. Adherence to schedule

7.3.1. When the testing laboratory is ready to test according to the established schedule, but is prevented from testing or taking specimens due to incompleteness of the Work, all extra charges for testing attributable to the delay may be back-charged to the Contractor and shall not be borne by the Owner.

## PART 2 – PRODUCTS (NOT USED)

## PART 3 - EXECUTION

### 1. FIELD QUALITY CONTROL

#### 1.1. Site Tests

1.1.1. Representatives of the testing laboratory shall have access to the Work at all times and at all locations where the Work is in progress. Provide facilities for such access to enable the laboratory to perform its functions properly.

1.1.2. All specimens and samples for testing, unless otherwise provided in the Contract Documents, shall be taken by the testing personnel. All sampling equipment and personnel will be provided by the testing laboratory. All deliveries of specimens and samples to the testing laboratory will be performed by the testing laboratory.

## **END OF DOCUMENT**

## **DOCUMENT 01 45 00 - QUALITY CONTROL**



## PART 1 - GENERAL

### 1. SECTION INCLUDES

- 1.1. Quality assurance and control of installation.
- 1.2. Field samples.
- 1.3. Inspection and Testing Laboratory Services.

### 2. RELATED SECTIONS

- 00 70 00 - General Conditions
- 01 33 00 – Submittal Procedures

### 3. QUALITY ASSURANCE AND CONTROL OF INSTALLATION

- 3.1. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.
- 3.2. Comply fully with manufacturers instructions, including each step in sequence.
- 3.3. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- 3.4. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- 3.5. Perform work by persons qualified to produce workmanship of specified quality.
- 3.6. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

### 4. FIELD SAMPLES

- 4.1. Install field samples at the site as required by individual sections for review.
- 4.2. Acceptable samples represent a quality level for the Work.
- 4.3. Where field sample is specified in individual Sections to be removed, clear area after field sample has been accepted by the Engineer.

### 5. INSPECTION AND TESTING LABORATORY SERVICES

- 5.1. Contractor will appoint, employ, and pay for services of an independent firm to perform inspection and testing, including testing for compaction.
- 5.2. The independent firm will perform inspections, tests, and other services specified in individual sections and as required by the Engineer.
- 5.3. Reports will be submitted by the independent firm to the Engineer, in triplicate, indicating observations and results of tests and indicating compliance or noncompliance with Contract Documents.
- 5.4. Cooperate with independent firm, furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
  - 5.4.1. Notify Engineer and independent firm 24 hours prior to expected time for operations requiring services.
  - 5.4.2. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
- 5.5. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the Engineer, Payment for retesting will be charged to the Contractor by deducting inspection or testing charges from the Contract Price.
- 5.6. The Contractor shall submit data and samples, or place his orders, sufficiently early to permit consideration, inspection and testing before the materials and equipment are needed for incorporation in the Work. The consequences of his failure to do so shall be the Contractor's sole responsibility.
- 5.7. All samples shall be packed so as to reach their destination in good condition, and shall be labeled to indicate the material represented, the name of the building or work and location for which the material is intended, and the name of the Contractor submitting the sample. To ensure consideration of samples, the Contractor shall notify the Engineer by letter that the samples have been shipped and shall properly describe the samples in the letter. The letter of notification shall be sent separate from and should not be enclosed with the samples.

**END OF DOCUMENT**

## **DOCUMENT 01 57 00 - TEMPORARY CONTROLS**

### **PART 1 – GENERAL**

#### **1. RELATED SECTIONS**

00 70 00 - General Conditions

#### **2. PAYMENT FOR WORK PERFORMED AS REQUIRED**

- 2.1. All costs associated with providing, maintaining, operating and removal of the work described in the above mentioned sections, shall be considered part of the total bid price. It being understood and agreed to by the Contractor that the Contract Price, as indicated in the bid, shall constitute full and complete compensation to the Contractor for providing all provisions necessary and/or required for maintaining any of these facilities or controls during construction.

#### **3. HEATING DURING CONSTRUCTION**

- 3.1. If temporary heat is required for the protection of the Work, the Contractor shall provide and install suitable heating apparatus, shall provide adequate and proper fuel, and shall maintain heat as required to maintain specified conditions for construction operations.
- 3.2. Temporary heating apparatus shall be installed and operated in such a manner that finished work will not be damaged thereby.
- 3.3. The installation and operation of heating devices shall comply with all safety regulations including provisions for adequate ventilation and fire protection. Heating devices, which may cause damage to finish surfaces, shall not be used.

#### **4. TEMPORARY ELECTRICITY**

- 4.1. The Contractor shall provide electrical energy required for temporary light and power.
- 4.2. The Contractor shall pay for the cost of electrical energy used. Any temporary wiring of a special nature shall be paid for by the Contractor such as:
- 4.2.1. Special circuits required by electric welders, elevators, lifts or other special equipment requiring high-amperage and/or special voltage service, etc.
- 4.2.2. Exterior lighting circuits for protection against vandalism, public warning lights and lights for advertising, etc.
- 4.2.3. Provide power outlets for construction operations, with branch wiring and distribution boxes located as required.

4.2.4. Provide all extension cords, sockets, motors, and accessories required for construction operations.

4.2.5. All temporary wiring shall be removed after it has served its purpose. Use copper wire only.

## 5. TEMPORARY LIGHTING

5.1. Provide and maintain lighting for construction operations.

5.2. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails and lamps as required.

5.3. Maintain lighting and provide routine repairs.

5.4. Permanent building lighting may be utilized during construction.

## 6. DUST CONTROL

6.1. Exercise every precaution and means to prevent and control dust arising out of all construction operations. Pavements adjoining excavation shall be kept broomed off and washed clean of excess materials wherever and whenever directed by the Engineer. Repeated daily dust control treatment shall be provided to satisfactorily prevent the spread of dust until permanent pavement repairs are made and until earth stockpiles have been removed, and all construction operations that might cause dust have been completed.

## 7. NOISE CONTROL

7.1. Develop and maintain a noise-abatement program and enforce strict discipline over all personnel to keep noise to a minimum.

7.2. Execute construction work by methods and by use of equipment which will reduce excess noise.

7.2.1. Equip air compressors with Silencers, and power equipment with mufflers.

7.2.2. Manage vehicular traffic and scheduling to reduce noise.

## 8. CLEANING DURING CONSTRUCTION

8.1. Unless otherwise specified under individual sections, the Contractor shall perform clean-up operations during construction as herein specified.

8.2. Control accumulation of waste materials and rubbish; periodically dispose of off site. The Contractor shall bear all costs, including fees resulting from disposal.

- 8.3. Clean interior areas prior to starting finish work and maintain areas free of dust and other contaminants during finishing operations.
- 8.4. Maintain project in accordance with all local, State and Federal Regulatory Requirements.
- 8.5. Store volatile wastes in covered metal containers, and remove from premises.
- 8.6. Prevent accumulation of wastes which create hazardous conditions.
- 8.7. Provide adequate ventilation during use of volatile or noxious substances.
- 8.8. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
  - 8.8.1. Do not burn or bury rubbish and waste materials on site.
  - 8.8.2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
  - 8.8.3. Do not dispose of wastes into streams or waterways.
- 8.9. Use only those materials which will not create hazards to health or property and which will not damage surfaces.
- 8.10. Use only those cleaning materials and methods recommended by manufacturer of surface material to be cleaned.
- 8.11. Execute cleaning to ensure that the buildings, the sites, and adjacent properties are maintained free from accumulations of waste materials and rubbish and windblown debris, resulting from construction operations.
- 8.12. Provide on-site containers for collection of waste materials, debris, and rubbish.
- 8.13. Remove waste materials, debris, and rubbish from the site periodically and dispose of at legal disposal areas off the construction site.
- 8.14. Handle material in a controlled manner with as little handling as possible. Do not drop or throw materials from heights.
- 8.15. Schedule cleaning operations so that dust and- other contaminants resulting from cleaning process will not damage surrounding surfaces.

## 9. EROSION AND SEDIMENT CONTROL

- 9.1. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.

- 9.2. Minimize amount of bare soil exposed at one time.
- 9.3. Provide temporary measures such as berms, dikes, and drains, to prevent water flow.
- 9.4. Construct fill and waste areas by selective placement to avoid erosive surface silts for clays.
- 9.5. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.
- 9.6. Construct sediment control devices for discharge from dewatering trenches.

## 10. POLLUTION CONTROL

- 10.1. Special care shall be taken to prevent contamination or muddying up or interfering in any way with the stream flows, if any along the line of work. No waste matter of any kind will be allowed to discharge into the stream flows or impounded water of any pools or other bodies of water.

## 11. PROTECTION OF TREES

- 11.1. The Contractor shall take care not to harm trees along the sides of roads in which the contractor work is to be done or trees on adjacent lands except as indicated on the drawings or with the written permission of the Owner and any other owner of the trees involved. Care shall be taken not to cut tree roots so as to harm the growth of trees to remain.
- 11.2. If, in the opinion of the Engineer, any trees damaged during construction can be repaired, the Contractor shall satisfactorily repair same at no further cost to the Owner.
- 11.3. If, in the opinion of the Engineer, any tree damaged during construction cannot be repaired and should be removed, the Contractor shall satisfactorily remove and replace, in kind, same at no further cost to the Owner.

## 12. PROTECTION AGAINST HIGH WATER AND STORM

- 12.1. The Contractor shall take all precautions to prevent damage to the work or equipment by high waters or by storms. The Engineer with the approval of the Owner may prohibit the carrying out of any work at any time when in his judgment, high water or storm conditions are unfavorable or not suitable, or at any time, regardless of the weather, when proper precautions are not being taken to safeguard previously constructed work or work in progress.

- 12.2. In case of damage caused by the failure of the Contractor to take adequate precautions, the Contractor shall repair or replace equipment damaged and shall make such repairs or rebuild such parts of the damaged work, as the Engineer may require, at no additional expense to the Owner.

### 13. REMOVAL OF UTILITIES, FACILITIES AND CONTROL

- 13.1. Remove temporary above grade or buried utilities, equipment, facilities, materials, prior to Substantial Completion inspection.
- 13.2. Clean and repair damage caused by installation or use of temporary work.
- 13.3. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

**END OF DOCUMENT**

## **DOCUMENT 01 58 00 - TRAFFIC REGULATION**

### **PART 1 - GENERAL**

#### **1. RELATED SECTIONS**

- 00 70 00 - General Conditions
- 01 57 00 - Temporary Controls

#### **2. TRAFFIC CONTROL**

- 2.1. The Contractor will be required to conform to the Town's Right-of-Way Ordinance. This includes providing a uniform police officer at all times when work is performed within the Town right-of-way and uniform police officers (minimum of two) when traffic is reduced to less than two-way or as directed by the North Providence Police Department or Public Services Director.
- 2.2. The Contractor will be required to maintain at least one lane of travel at all times on Grove Ave for emergency vehicles only.
- 2.3. The Contractor will post construction signs, barriers, and channelization devices as required in the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).
- 2.4. The employment or presence of special officers, or police shall in no way relieve the Contractor of any responsibility of liability which is his under the terms of the Contract.
- 2.5. The Contractor shall obtain written permission from the Police and Fire Department prior to the closing of any street.
- 2.6. The Contractor shall provide suitable vehicular and pedestrian access to all adjacent property in accordance with Section 00 70 00.
- 2.7. Whenever it may be necessary to interfere with any bus lines, notice shall be given to the corporation owning the same, and reasonable time will be given to said corporation to arrange the schedule for operations of the bus line, as it may be necessary.
- 2.8. Provisions shall also be made for safe passage at all times for school buses.
- 2.9. Prior to a weekend, a holiday, or other period, in the sole opinion of the Engineer, traffic is sufficiently congested or public safety is endangered, the Contractor shall backfill and compact excavations, complete, as directed and authorized by the Engineer. The Contractor shall not have or assert any claim for nor shall be entitled to any additional compensation or damages on account of mandatory excavation closures.
- 2.10. Cost for traffic control and construction signs are to be included in the cost of construction. There will be no separate payment for these items.



### 3. SPECIAL TRAFFIC REQUIREMENTS

- 3.1. The Contractor's attention is directed to the fact that all roads will be kept open to Police, Fire, and other emergency vehicles. The Contractor shall provide such temporary ways or guards as shall be acceptable to the owner.
- 3.2. It is essential that the Contractor coordinate his operations with the Police and Fire Department throughout the duration of the project. Prior to the start of any work, the Contractor shall submit to the Owner and Engineer, in writing, individual traffic plans for each location of work to be done under this Contract. All plans are to be approved by the Owner, Engineer and State authorities as mentioned above prior to the start of the work.
- 3.3. The Contractor must also obtain and submit to the Owner and Engineer, written permission from the Police and Fire Department and the Highway Department prior to the closing of any streets.
- 3.4. The Contractor shall adhere to traffic management plan requirements as indicated on contract drawings for work within a state highway.

### 4. LIGHTS, BARRIERS, FENCES, WATCHMEN AND INDEMNITY

- 4.1. The Contractor shall put up and maintain such barriers, fences, lighting and warning lights, danger warning signals and signs as will prevent accidents during the construction work, and protect the work and insure the safety of personnel and the public at all times and places; and the Contractor shall defend, indemnify and save harmless the Engineer, the Owner, and its agents in every respect from any injury or damage whatsoever caused by any act, omission or neglect of the Contractor or his agents, including any claims arising, either wholly or partially, out of failure to erect and maintain sufficient railing or fence. The fact that the Owner may retain control of the premises, or that it or its agents may take action to erect or maintain railings or fences shall not relieve the Contractor's obligations hereunder.
- 4.2. The Contractor shall furnish, maintain and use all necessary safety devices and safe practices in prosecution of the work and to adopt, follow and maintain additional safety measures as in the opinion of the Engineer with the approval of the Owner are conducive to safe operation by the Contractor. The Owner shall have the right to order any or all work suspended where, in the Engineer's opinion, such work is not being carried on in a safe and proper manner, or where persons and property are not being properly protected or safeguarded and such work shall not be resumed until the Owner's requirements have been met and the Owner has directed that work be resumed. The work required by the preceding paragraph shall be totally at the Contractor's expense.
- 4.3. In addition to the above, when and as necessary, or when required by the Engineer, with

the approval by the Owner, the Contractor shall post signs and employ watchmen, flagmen, or police officers for the direction of traffic at the site and for excluding at all times unauthorized persons from the work, for which the Contractor will not be paid additional compensation.

## 5. PERMITS FOR WORK IN STREETS

- 5.1. The Contractor shall obtain prior to performing the work specified, all permits required by any federal, state and local agencies to perform the work as indicated and specified under this Contract. All required procedures for obtaining said permits including permit applications and associated fees, shall be the sole responsibility of the Contractor with no additional cost or claim against the Owner. A street opening permit will not be issued for a minimum 72 hours after the Contractor notifies DigSafe and the appropriate local public works departments.
- 5.2. Prior to the start of work, the Contractor shall submit copies of all permits required for work under this Contract to the Owner and Engineer for review.
- 5.3. The Contractor shall not have or assert any claim for nor shall be entitled to any additional compensation or damages on account of requirements set forth by any federal, state and local agencies during the construction, including, however, not limited to, mandatory trench closures.

**END OF DOCUMENT**

## **DOCUMENT 01 60 00 - PRODUCT REQUIREMENTS**

### **PART 1 - GENERAL**

#### **1. RELATED SECTIONS**

- 00 70 00 - General Conditions
- 01 45 00 - Quality Control

#### **2. PRODUCTS**

- 2.1. Products include material, equipment, and systems.
- 2.2. Comply with Specifications and referenced standards as minimum requirements.
- 2.3. Components required to be supplied in quantity within a Specification Section shall be the same, and shall be interchangeable.
- 2.4. Do not use materials and equipment removed from existing structures, except as specifically required, or allowed, by the Contract Documents.

#### **3. WORKMANSHIP**

- 3.1. Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.
- 3.2. Perform work by persons qualified to produce workmanship of specified quality.
- 3.3. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.

#### **4. TRANSPORTATION AND HANDLING**

- 4.1. Transport and handle products in accordance with manufacturer's instructions.
- 4.2. Transport products by methods to avoid product damage; deliver in undamaged condition in manufacturers' unopened containers or packaging, dry.
- 4.3. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement or damage.
- 4.4. Promptly inspect shipments to assure that products comply with requirements, that quantities are correct, and products are undamaged.
- 4.5. Storage and demurrage charges by transportation companies and vendors shall be borne by the Contractor.

## 5. STORAGE AND PROTECTION

- 5.1. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weathertight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.
- 5.2. For exterior storage of fabricated products, place on sloped supports above ground.
- 5.3. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.
- 5.4. Provide off-site storage and protection when site does not permit on-site storage or protection.
- 5.5. Store loose granular materials on solid surfaces in a well-drained area. Prevent mixing with foreign matter.
- 5.6. Arrange storage of products to provide access for inspection. Periodically inspect to assure that products are undamaged, and are maintained under specified conditions.

**END OF DOCUMENT**

## EARTHWORK

### 1. PART 1 - GENERAL

#### 1.1. RELATED DOCUMENTS

- 1.1.1. Requirements of General Conditions of the contract, Supplementary Conditions and General Requirements, are hereby made a part of this section as fully as if repeated herein.
- 1.1.2. Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction, amended August 2013 with latest Addenda applies to this Section.

#### 1.2. SPECIAL CONDITIONS

- 1.2.1. The Contractor shall notify “Dig-Safe” in Rhode Island at 1-888-344-7233, prior to any excavation. The “Dig-Safe” number shall be provided to the Engineer.

#### 1.3. RELATED SECTIONS

- 31 10 00 Site Preparation
- 31 80 00 Earthwork Utilities

#### 1.4. DESCRIPTION OF WORK

- 1.4.1. Work under this section includes, but is not necessarily limited to, the following:
  - 1.4.1.1. Preparing and grading subgrades for footings, slabs-on-grade, walks, pavements, and landscaping.
  - 1.4.1.2. Excavating all materials and backfilling and structures, including open cut rock excavation and trench rock excavation for installation of site utilities.
  - 1.4.1.3. Filling, backfilling, and compacting fill to the satisfaction of a qualified soils testing lab engineer conforming to these specifications where applicable.
  - 1.4.1.4. Rough grading to required tolerances.
  - 1.4.1.5. Filling, as directed, excess cut under footings, foundations, and trenches.
  - 1.4.1.6. The placing of earth for forming, shaping and compaction of embankments.
  - 1.4.1.7. Maintaining bench marks, monuments, and other reference points,

obtaining accurate replacement of final grade of any disturbed or destroyed, or that must be removed due to the nature of the work, furnishing certification by a professional surveyor that all disturbed items have been accurately relocated.

1.4.1.8. Written notice of readiness of footing excavations, fill materials, fill areas, compacted fills, and items requiring review and/or inspection.

1.4.1.9. Maintain excavations and trenches free of water.

1.4.1.10. Excavating, stock piling and placing material suitable for filling and backfilling.

1.4.1.11. Remove from site all debris, unsuitable material and excess excavated material as specified and/or as directed by the Engineer.

1.4.1.12. Excavation and grading of storm water detention and retention facilities and compensatory wetlands.

1.4.1.13. Restoration to original grades and condition, properties damaged by any activity related to the work, taking adequate precautions to avoid settlement or cave-in of properties higher than site, silting, erosion, or other damage to properties lower than site.

## 1.5. OTHER WORK

1.5.1. All excavation for trenches required for direct burial cables, direct lines, handholes, manholes, transformer pads, pole bases, and the like shown on the site or electrical drawings or specified herein or in the electrical division of these specifications, shall be the responsibility of this Contractor.

## 2. PART 2 – PRODUCTS

### 2.1. MATERIALS

2.1.1. Fill materials shall be reviewed, and shall conform to the State of Rhode Island Highway Standards and Specifications Materials Section M.01 and the following unless specifically indicated otherwise.

2.1.2. Fill, unless otherwise specified, shall be earth free of debris, cinders, combustibles, frost, ice, roots, sod, wood, cellulose, and organic materials. Up to 30 percent of fill material may be rock-like materials not to exceed 0.05 cubic foot in volume, nor more than 10" in length, evenly distributed in total fill.

2.1.3. Upper 18 inches of fills under topsoil of lawn and planted areas shall be earth free of debris, cinders, frost, ice, sod, wood and roots over 1/4" in diameter. Up to 10

percent of fill materials may be rock-like materials not to exceed 0.05 cubic foot in volume, nor more than 4" in length. Also up to 20 percent of fill may be topsoil, but not sod.

2.1.4. Selected backfill shall be excavated materials, free-draining, clean, granular soil suitable for backfill. It shall not be frozen and shall be free from peat, vegetable or organic matter and any other debris and shall be readily compactable.

2.1.5. Bank run gravel shall be of a granular nature, the major portion of which may be sand, gravel and other stone. It shall not be frozen and shall be free from peat, vegetable or organic matter and any other debris and shall be readily compactable. See trench backfill section for size requirements.

2.1.6. Fill under concrete floors and foundations shall be clean, granular fill from stockpile or from off-site borrow area and shall consist of bank-run gravel or gravely sand free of roots, sod, rubbish or other deleterious organic matter, fine silt, or clay. Fill material shall conform to following gradation requirements:

2.1.7. Grain-size distribution curve shall be furnished to the Engineer by a soil test lab engineer.

2.1.8. Areas from which fill material is obtained shall have been completely stripped of topsoil and underlying sandy silt material. No fill shall be brought to site or purchased until such material has been reviewed by the Engineer. Fill shall conform in quality to sample as selected by the Engineer.

2.1.9. First class bedding shall be screened, crushed stone meeting the requirements of ASTM designation C33-71A, gradation 67. The material shall be well graded (1.9 to 0.6 cm) so that 100 percent will pass a 3/4 inch square opening sieve and be retained on a No. 4 sieve.

### 3. PART 3 – EXECUTION

#### 3.1. GENERAL EXCAVATION REQUIREMENTS

3.1.1. Where use herein, "Finished Grade" refers to final grade at elevation indicated. Spot elevations govern contour elevations. Subgrade under lawn areas shall be maintained at 6" lower than "Finished Grade", unless indicated otherwise.

3.1.2. The extent of excavation open at any one time shall be controlled by the conditions, but shall always be confined to the limits prescribed by the Engineer.

3.1.3. No excavated material shall be placed on lawns, driveways or other private property without written consent of Owner. All disturbed areas shall be restored by the Contractor at no cost to Owner.

- 3.1.4. The Contractor shall take all necessary measures to protect trees not to be removed from the site of the work against damage from machinery and from excavated material. Branches and roots shall not be cut unless permitted by the Engineer.
- 3.1.5. Trees, cultivated plants, shrubs and hedges which might be damaged by the Contractor's operations shall be protected or shall be transplanted, maintained, watered and replanted. Trees to be saved shall be protected by the installation of a snow fence installed at the drip line. If such trees, plants, shrubs or hedges are damaged to the degree that their growth or beauty is affected, they shall be replaced by the Contractor at his own expense. All surfaces which have been damaged by the Contractor's operations shall be restored to a condition at least equal to that in which they were found just prior to the start of construction. Damaged trees shall be replaced at a cost of six hundred dollars per caliper inch.
- 3.1.6. The restoration of existing property shall be done as promptly as practicable and not left to the end of the construction work.
- 3.1.7. All existing pipes, poles, wires, curbing, property line markers, fences, walls, or other structures which, in the opinion of the Engineer, must be preserved in place without relocation shall be carefully supported and protected by the Contractor. In the event of damage they shall be restored to their original condition by the Contractor at his own expense.
- 3.1.8. As excavation approaches existing utilities or other underground structures, digging with machinery shall cease and the excavation shall be done manually, as directed.
- 3.1.9. Excavation and backfill operations adjacent to existing utilities, structures and construction shall be done in such a manner as will prevent the loss of ground or caving in of excavations, the undermining, damage or disturbing or existing pipelines, utilities and structures or any completed construction of the project. Backfill shall be placed, compacted, and done in such a manner as to prevent future settlement and damage to the existing pipelines, utilities, structures, or construction. Existing pipelines, utilities, structures, new construction, or property damaged due to excavation, backfilling and settlement of the backfill, shall be the responsibility of the Contractor and shall be corrected in a manner satisfactory to the Engineer at no additional expense to the Owner.
- 3.1.10. Unsuitable excavated material shall systematically be separated and removed from suitable material to the satisfaction of Engineer.
- 3.1.11. Unsuitable material shall be promptly removed and disposed of off-site at no expense to the Owner.
- 3.1.12. Surplus suitable material shall be the property of the Owner and stored on site as



directed, or at the Owner's request, this material shall be removed from the site by the Contractor at no additional cost to the Owner.

3.1.13. Boulders over 16" in length, if encountered, shall be removed from subgrade of cut areas.

3.1.14. Remove obstructions to depth of 6" below new construction, and 8" below subgrade in other areas.

3.1.15. If excavation goes beyond lines shown in details, Contractor shall replace material with bank run gravel.

3.1.16. Excavations shall be carried to design depths.

3.1.17. If excavation is carried beyond line or below grade, except as directed, or subgrade is made unsatisfactory by act or neglect of Contractor, he shall remove such unsatisfactory material. No extra payment will be made for replacement with satisfactory fill, additional concrete, or other suitable materials as directed.

3.1.18. Contractor shall provide adequate dust control during earthwork operations. Public ways and haul routes shall be cleaned and swept daily if required by intensity of the work, traffic and weather.

3.1.19. Contractor shall provide and maintain temporary barricades and traffic controls as required.

### 3.2. PREPARATION

3.2.1. Protect Structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

3.2.2. Protect subgrades and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary.

3.2.3. Provide erosion control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

### 3.3. "DIG-SAFE" DAMAGE PREVENTION SYSTEM

3.3.1. All Contractors or subcontractors performing drilling, boring, augering, jetting, sheeting or pile installation, soil preloading for consolidation, demolition, excavation or like work shall, prior to commencement of these activities, contact utility companies having responsibility for underground transmission systems for information relative to locations of existing underground utilities and/or an

appropriate dig damage prevention and notification agency.

- 3.3.2. The Contractor shall notify “Dig-Safe” in Rhode Island at 1-888-344-7233, prior to any excavation. The “Dig-Safe” number shall be provided to the Engineer.

### 3.4. CUTTING PAVEMENT

- 3.4.1. Excavations made in pavement shall be made in a careful manner so as to cause the least amount of damage to the pavement. Roadway pavement in state highways, local roads, sidewalks, and easements having Class 1 and Class 2 bituminous concrete pavement shall be cut prior to trench excavation. Pavement and/or cement concrete will be cut 6 inches either side of the maximum allowable trench width. Any damage to the cut line due to the excavations, backfilling or removal of temporary pavement shall be re-cut to neat lines at no additional cost to the Owner prior to replacement of the specified finished pavement. The width of pavement removed shall be kept as narrow as practicable. Existing pavement and base course disturbed or damaged beyond the payment lines indicated shall be replaced by the Contractor to match existing pavement and base course, at no additional cost to the Owner.
- 3.4.2. Contractor shall remove and dispose of existing bituminous concrete pavement as is necessary to perform the work of this contract as indicated. Removal of pavement shall be done in a neat manner by saw cutting a neat edge.
- 3.4.3. Excavated pavement shall not be mixed with other excavated material which is to be used as backfill, and shall be removed immediately from the site of the work. Excavated pavement may be reprocessed and reused based upon its gradation.

### 3.5. EXCAVATION

- 3.5.1. Explosives are not permitted for this project.
- 3.5.2. Unclassified Excavation is excavation that is unclassified and includes excavation to required subgrade elevations regardless of the character of materials and obstructions encountered.
- 3.5.3. Classified Excavation is excavation that is classified and includes excavation to required subgrade elevations. Excavation will be classified as earth excavation or rock excavation as follows:
- 3.5.3.1. Earth excavation includes excavation of pavements and other obstructions visible of surface; underground structures, utilities, and other items indicated to be demolished and removed; together with soil and other materials encountered that are not classified as rock or unauthorized excavation.
- 3.5.3.2. Rock excavation shall mean removal and disposal of rock material as

directed by the Engineer.

- 3.5.4. It is not anticipated that rock will be encountered. Should rock be encountered, the Contractor shall be paid for all rock encountered based on unit prices and items of rock (open/trench) stated elsewhere in this specifications.
- 3.5.5. All rock removal shall be in conformance with local and state authorities having jurisdiction over this work.
- 3.5.6. Definition of "Rock Excavation" shall mean:
  - 3.5.6.1. Materials that cannot be removed effectively with soil excavating equipment, such as rock material or aggregate conglomerate deposits so firmly cemented as to possess the physical characteristics of solid rock.
  - 3.5.6.2. Concrete or masonry structures larger than 1 cubic yard in volume, and not less than 13" in least dimension.
  - 3.5.6.3. Reinforced concrete larger than 1 cubic yard in volume, reinforcement area more than ½ percent of cross sectional area perpendicular to reinforcement in either direction, and not less than 8" in least dimension.
  - 3.5.6.4. Boulders 1 cubic yard or more in volume, sound rock material in ledges, bedded deposits and unstratified masses which cannot be removed without blasting.
  - 3.5.6.5. The definition of "Trench Rock" is rock required to be removed and disposed for the installation of trenches requiring an excavation 3' wide or less, and greater than 5' deep, or the removal and disposal of rock encountered in the construction of masonry culverts and structures having a clear span of less than 8 feet.
- 3.5.7. When, during excavation, material is encountered that Contractor may classify as rock excavation, such material shall be uncovered and the Engineer notified by Contractor. Contractor shall not proceed with excavation of this material until the Engineer has classified material as earth excavation or rock excavation. Failure on part of Contractor to uncover such material and notify the Engineer will cause forfeiture of Contractor's right of claim for payment of rock excavation.
- 3.5.8. Soft or disintegrated rock or hardpan which can be removed with a hand pick or power operated excavating machines, or loose or previously blasted rock, will not be considered as rock excavation.
- 3.5.9. Before rock removal commences, the Contractor shall uncover all ledge to be removed. Elevations shall be taken by a registered land surveyor not employed by the Contractor. Surveyor will be paid by the Contractor. After completing rock

removal, elevations shall be taken again by the surveyor. Amounts of ledge removed will be agreed to by Contractor and Owner.

3.5.10. Surveyor shall develop cross sections to show and determine rock quantities for payment purposes. Cross sections shall be reviewed by the Engineer. Payment for rock removal shall be based on “Methods of Measurement” or “pay lines” as stated within the project specifications and drawings. The Contractor shall be paid only in accordance with calculated quantities and not for actual rock removed.

3.5.11. Rock excavation may also be accomplished utilizing ripping, hoe ramming, or other mechanical means to loosen and remove rock.

3.5.12. Wherever rock is shattered below grade and is unfit for foundations, the shattered rock shall be removed and replaced as specified. No extra payment will be made for overbreak or backfill as required.

3.5.13. Rock shall be removed to a depth of 12” below lawn areas.

### 3.6. STABILITY OF EXCAVATIONS

3.6.1. Comply with local codes, ordinances, and requirements of authorities having jurisdiction to maintain stable excavations.

### 3.7. APPROVAL OF SUBGRADE

3.7.1. Notify the Engineer when excavations have reached required subgrade.

3.7.2. When the Engineer determines that unforeseen unsatisfactory soil is present, continue excavation and replace with systematically placed and compacted backfill or fill material as directed.

3.7.2.1. Unforeseen additional excavation and replacement material will be paid according to the Contract provisions for changes in Work.

3.7.3. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by the Engineer at no cost to the Owner.

3.7.4. Compacted Fill Surfaces: Compacted Engineered Fill, or other fill materials, which become disturbed, contaminated with clay or otherwise unacceptable to the Owner’s Representative shall be removed and replaced with acceptable Engineered Fill at no additional cost to the Owner.

#### 3.7.5. Cold Weather Subgrade Protection

3.7.5.1. When the atmospheric temperature is less than 32 degrees F, the Contractor shall protect excavation subgrades and lean concrete from freezing.

Cold weather subgrade protection may consist of an earth fill cover, hay cover, insulation cover, heating or other means of protecting the subgrade materials from freezing.

- 3.7.5.2. Subgrades, which have been permitted to freeze by the Contractor, will be judged to be unsuitable for placement of Lean Concrete or Engineered Fill by the Owner's representative. The Contractor at the Contractor's expense shall conduct additional excavation of frozen subgrade soil, and replacement with materials acceptable to the Owner's representative.

### 3.8. UNAUTHORIZED EXCAVATION

- 3.8.1. Fill unauthorized excavation under foundations or wall footings by extending indicated bottom elevation of concrete foundation or footing to excavation bottom, without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position when acceptable to the Engineer, at no cost to the Owner.

- 3.8.1.1. Fill unauthorized excavations under other construction as directed by the Engineer, at no cost to the Owner.

- 3.8.2. Where indicated widths of utility trenches are exceeded, provide stronger pipe, or special installation procedures, as required by the Engineer, at no cost to the Owner.

### 3.9. STORAGE OF SOIL MATERIALS

- 3.9.1. Stockpile excavated materials acceptable for backfill and fill soil materials, including acceptable borrow material. Stockpile soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Provide erosion control measures around perimeter of stockpiles. Cover to prevent wind-blown dust.

- 3.9.1.1. Stockpile soils materials away from edge of excavations. Do not store within drop line of remaining trees.

- 3.9.1.2. Establish soil and material stockpiles on site only at locations acceptable to the Owner.

### 3.10. BACKFILL

- 3.10.1. Backfill excavations promptly, but not before completing the following:

- 3.10.1.1. Acceptance of construction below finish grade including, where applicable, damp proofing, waterproofing, and perimeter insulation.

- 3.10.1.2. Surveying locations of underground utilities for record documents.

- 3.10.1.3. Testing, inspecting, and approval of underground utilities.
  - 3.10.1.4. Concrete formwork removal.
  - 3.10.1.5. Removal of trash and debris from excavation.
  - 3.10.1.6. Removal of temporary shoring and bracing, and sheeting.
  - 3.10.1.7. Installing permanent or temporary horizontal bracing supported walls.
- 3.10.2. No backfill shall be placed except in the presence of the Owner or Owner's representative.

3.11. FILL

- 3.11.1. Preparation: Remove vegetation, topsoil, debris, wet and unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placing fills.
  - 3.11.1.1. Plow, scarify, strip, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing surface.
- 3.11.2. When subgrade or existing ground surface to receive fill has a density less than that required for fill, break up ground surface to depth require, pulverize, moisture-condition or aerate soil, and re-compact to require density.
- 3.11.3. Place fill material in layers to required elevations for each location listed below.
  - 3.11.3.1. Under grassed areas, use common borrow material.
  - 3.11.3.2. Under steps and ramps, use gravel borrow.
  - 3.11.3.3. Under building slabs, use gravel borrow except for the last 12" use drainage fill.
  - 3.11.3.4. Under footings and foundations, use gravel borrow.
  - 3.11.3.5. Under piping and conduit, provide gravel borrow and bedding material where indicated under piping or conduit; shape to fit bottom 90 degree of cylinder.

3.12. MOISTURE CONTROL

- 3.12.1. Uniformly moisten, moisten condition, or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture

content.

3.12.1.1. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

3.12.1.2. Remove and replace, or scarify and air-dry satisfactory soil material that is too wet to compact to specified density.

3.12.1.2.1. Stockpile or spread and dry removed wet satisfactory soil material.

3.12.1.3. Fill materials shall not be frozen when placed, or be allowed to freeze prior to, or after compaction, or placement.

3.12.1.4. Soil bearing surfaces below completed slabs and foundations shall be protected against freezing. Frost protection shall be provided in a manner acceptable to the Owner's representative as soon as possible after foundations are constructed.

3.12.1.5. Do not excavate to full indicated depth when freezing temperatures may be expected, unless the mats, footing, or slab is poured immediately after the excavation has been completed. Protect the excavation from frost if placing of concrete is delayed. Concrete for foundations or slabs shall not be placed on frozen soil. Where footings, slabs, or mud mats are exposed to freezing temperatures, they shall be protected to prevent damage to the concrete by freezing or frost penetration into the soil upon which they rest. Where foundations are exposed over the winter during construction, provide at least two and one-half (2.5) feet of earth cover above the bottom surface of concrete, plus hay or other protection if temperatures are severe, as directed by the Owner's representative.

3.12.2. Wet weather: If fill material placement, spreading, rolling, or compaction operations are interrupted by heavy rain or other unfavorable conditions, do not resume such operations until ascertaining that the moisture content and density of the previously-placed soil are as required by these specifications.

### 3.13. COMPACTION

3.13.1. Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

3.13.2. Place backfill and fill materials evenly on all sides of structures to require elevations. Place backfill and fill uniformly along the full length of each structure.

3.13.3. Percentage of Maximum Dry Density Requirements: Compact soil to not less than

the following percentages of maximum dry density according to ASTM D 1557.

3.13.3.1. Under structures, building slabs, and steps, compact the top 12 inches below subgrade and each layer of backfill or fill material at 95 percent maximum dry density.

3.13.3.2. Under lawn or unpaved areas, compact the top 6 inches below subgrade and each layer of backfill or fill material at 90 percent maximum dry density.

### 3.14. GRADING

3.14.1. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

3.14.1.1. Provide a smooth transition between existing adjacent grades and new grades.

3.14.1.2. Cut out soft spots, fill low spots, and trim high spots to conform to required surface tolerances.

3.14.2. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

3.14.2.1. Lawn or Unpaved Areas: Plus or minus 0.10 foot.

3.14.2.2. Pavements: Plus or minus ½ inch.

### 3.15. SUBBASE AND BASE COURSES

3.15.1. Under pavements and walks, place subbase course material on prepared subgrades. Place base course material over subbase for pavements.

3.15.1.1. Compact subbase and base courses at optimum moisture content to required grades, lines, cross sections and thickness not less than 95 percent of ASTM D 4254 relative density.

3.15.1.2. Shape subbase and base to required crown elevations and cross-slope grades.

3.15.1.3. When thickness of compacted subbase or base course is 6 inches or less, place materials in a single layer.

3.15.1.4. When thickness of compacted subbase or base course exceeds 6 inches, place materials in equal layers, with no layer more than 6 inches thick or less than three inches thick when compacted.



- 3.15.2. Pavement Shoulders: Place shoulders along edges of subbase and base course to prevent lateral movement. Construct shoulders at least 12 inches wide of acceptable soil materials and compact simultaneously with each subbase and base layer.

3.16. FIELD QUALITY CONTROL

- 3.16.1. Testing Agency Services: Allow testing agency to inspect and test each subgrade and each fill or backfill layer. Do not proceed until test results for previously completed work verify compliance with requirements.

- 3.16.1.1. Perform field in-place density tests according to ASTM D 1556 (sand cone method), ASTM D 2167 (rubber balloon method), or ASTM D 2937 (drive cylinder method), as applicable

- 3.16.1.1.1. Field in-place density tests may also be performed by the nuclear method according to ASTM D 2922, provided that calibration curves are periodically checked and adjusted to correlate to tests performed using ASTM D 1556. With each density calibration check, check the calibration curves furnished with the moisture gages according to ASTM D 3017.

- 3.16.1.1.2. When field in-place density tests are performed using nuclear methods, make calibration checks of both density and moisture gages at beginning of work, on each different type of material encountered, and at intervals as directed by the Engineer.

- 3.16.1.2. Footing Subgrade: At footing subgrades, perform at least one test of each soil stratum to verify design-bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of each subgrade with related tested strata when acceptable to the Engineer.

- 3.16.1.3. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, perform at least one field in-place density test for every 2,000 square feet or less of paved area or building slab, but in no case fewer than three tests.

- 3.16.1.4. Foundation Wall Backfill: In each compacted backfill layer, perform at least one field in-place density test for each 100 feet or less of wall length, but no fewer than two tests along a wall face.

- 3.16.2. When testing agency reports that subgrades, fills, or backfills are below specified density, scarify and moisten or aerate, or remove and replace soil to the depth required, re-compact and retest until required density is obtained.

3.17. TRENCH EXCAVATION

3.17.1. Excavate trenches as indicated in Section 31 80 00 "Earthwork Utilities."

### 3.18. COMPACTION EQUIPMENT

3.18.1. Contractor shall use, for compaction of subgrade and fill in designated areas, equipment at number of coverages stipulated depending upon suitability of equipment for the work, as follows:

3.18.1.1. Rubber-tired roller-compactor, having 4 wheel equipped with pneumatic tires of such size and ply as can be maintained at pressures between 80 and 100 psi with 25,000 lb. wheel load during rolling operation. Roller-wheels shall be located abreast, and so designed that each wheel will carry approximately equal load in traversing over even ground. Spacing of wheels shall be such that distance between nearest edges of adjacent tires will not be greater than one-half width of one tire at operating pressure for 25,000 lb. wheel load. Roller shall have body suitable for ballast loading such that load per wheel may be varied, if so directed, between 10,000 lb. and 25,000 lb. Roller shall be towed at speeds not exceeding 10 miles per hour.

3.18.1.2. Acceptable drum type vibratory compactor operating at not less than 2,000 vibrations per minute.

3.18.1.3. Ten wheel dump truck fully loaded with a minimum of 12 cubic yards of sand, gravel, or granulated fill weighing not less than 2,600 pounds per cubic yard. Each pass of the truck shall overlap its previous pass so that the wheels compact a path adjacent to that taken by their previous path.

3.18.1.4. In any event, regardless of equipment used, compaction of soil shall meet the relative densities stated in this section.

### 3.19. PROTECTION

3.19.1. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

3.19.2. Repair and re-establish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or lose compaction due to subsequent construction operations or weather conditions.

3.19.2.1. Scarify or remove and replace material to depth directed by the Engineer; reshape and re-compact at optimum moisture content to the required density.

3.19.3. Settling: Where settling occurs within 1 year after project completion, remove

finished surfacing, backfill with additional approved material, compact, and reconstruct surfacing.

3.20. DISPOSAL OF SURPLUS AND WASTE MATERIALS

3.20.1. All unsuitable material, and suitable material not required for the proper completion of the contract, shall become the property of the Contractor, and shall be removed and properly disposed of off-site at no additional cost to the owner.

3.20.2. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, debris, and pavement, and legally dispose of it off the Owner's property, at no additional cost to the Owner.

3.20.3. Reuse: Transport surplus satisfactory soil to designated storage areas on the Owner's property. Stockpile or spread soil as directed by the Engineer.

3.20.3.1. Remove waste material, including unsatisfactory soil, pavement, trash, and debris, and legally dispose of it off the Owner's property, at not cost to the Owner. Contractor to obtain and pay for all necessary permits or licenses for off-site disposal.

**END OF DOCUMENT**

## SITE PREPARATION

### 1. PART 1 – GENERAL

#### 1.1. RELATED DOCUMENTS

1.1.1. Drawings and General Provisions of Contract, including General and Supplementary Conditions Section, apply to work of this section.

1.1.1. Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction, amended August 2013 with latest addenda applies to this Section.

#### 1.1.2. RELATED SECTIONS

31 00 00 Earthwork  
31 25 00 Erosion and Sedimentation Control

#### 1.2. DESCRIPTION OF WORK

1.2.1. This work shall consist of clearing and grubbing, clean-up, cutting and removing isolated trees and stumps, stripping and stockpiling topsoil, removing and disposing of all vegetation, bollards, fence posts, cut off fence posts and associated concrete foundations, hazard markers, signs, sign posts and any other obstructions and undesirable materials within project site which are not designated or permitted to remain.

1.2.2. REFER TO DOCUMENT 31 00 00 "Earthwork" for earthwork controls; not part of this section.

1.2.3. REFER TO DOCUMENT 31 25 00 "Erosion and Sedimentation Control" for wetland protection measures; not part of this section.

### 1.3. PROTECTION

1.3.1. Prior to commencing the work, all areas shown on the plans as existing tree save areas and new tree line shall be identified, clearly marked and protected until accepted. Storage of construction materials, vehicle parking of access shall

be allowed only in areas designated by Engineer, and approved by Owner. Any damaged plant materials resulting from neglect by the general Contractor or his subcontractors shall result in a monetary and/or plant material exchange.

- 1.3.2. All other non-treed areas indicated to remain in its natural state shall also be protected by the Contractor. Any resulting damage due to the Contractor's neglect shall be restored to the satisfaction of the Engineer. If restoration is not satisfactory, then sufficient monies to cover damage shall be withheld from the Contractor.



- 1.3.3. Contractor shall protect treed and environmentally sensitive areas by installing tree and shrub protective devices, or any such barriers necessary to protect these areas. Trees and shrubs to be saved within work area shall be protected by tree protective devices or snow fence. Refer to the Contract Drawings for locations and details.

#### 1.4. RESTRICTIONS

- 1.4.1. Prior to clearing operations, the Contractor shall clearly and plainly mark on the ground, by use of colored tape, limits of clearing and grubbing, as indicated on plans. No clearing or cutting shall be done prior to such field determination. Contractor shall relate the tree lines from the horizontal control geometry and other control points as plan referenced.
- 1.4.2. When limits of clearing have been physically and clearing marked together with building and roadway centerline stakes, Contractor shall then notify the Engineer for an on-site review of the clearing limits. Failure of the Contractor to notify the Engineer prior to commencing this work shall result in forfeiture of payment for this work.
- 1.4.3. It is the declared and acknowledged intention that, other than those areas required for existing and new building and physical structures, roads, storm drainage facilities, walks, parking areas, athletic fields and site grading, the remainder of site shall remain in its natural state.

#### 1.5. SAFETY

- 1.5.1. All operation required under this section shall be conducted in a safe manner employing whatever means are necessary to provide safety to all persons on the project site.

### 2. PART 2 - PRODUCTS

#### 2.1. TREE PROTECTIVE DEVICES

- 2.1.1. Wood framing shall consist of nominal lumber 6 feet in length, and width and thickness varying from 2-inch by 2-inch to 2-inch by 6 inch, depending on trunk diameter. Binding material shall consist of wire single strand 9 gauge wire or ½-inch strapping.

#### 2.2. SHRUB PROTECTION DEVICES

- 2.2.1. Standard snow fence, 4 feet in height, installed around the shrub or grouping of shrubs to be protected. The snow fence will be supported by nominal 2" hard wood posts, embedded as required into the ground surface. Additional support to be

provided by wire or rope guys attached to nominal 2" hard wood stakes driven into the ground surface.

### 3. PART 3 – EXECUTION

#### 3.1. CLEARING

3.1.1. Clearing shall consist of felling and cutting up or trimming of trees, and satisfactory disposal of trees together with downed timber, snags, brush, shrubs, fences, logs, rubbish, rock walls or other debris occurring within areas indicated on the plans as new construction.

3.1.2. Trunks of trees may not be cut off more than 6" above original ground surface, in areas to be cleared where grubbing is not required.

3.1.3. Trunks of trees at the top of slopes, where rounding of slopes occur to meet existing ground and tree line, shall be cut off flush with or below the final slope line.

### 3.2. GRUBBING

3.2.1. Grubbing shall consist of removal and satisfactory disposal of stumps and buried roots larger than 1-1/2" diameter, to a depth of 18" below surface of original ground, except stumps within proposed structural foundation areas shall be entirely removed.

3.2.2. Areas to be grubbed shall be as follows:

3.2.2.1. New road and paved areas where depth of fill is less than 3', measured from subgrade to original ground surface.

3.2.2.2. Areas occupied by building to a horizontal distance of 6' outside the building walls or to the toe of slopes for buildings on fill.

3.2.2.3. In cut areas for the entire width or cut.

3.2.2.4. In non-paved areas required to be filled, if depth of fill is less than 2',

3.2.2.5. Except for building and structural foundation areas, no grubbing shall be required in areas where the height between the subgrade and original ground surface exceeds 3'. The remaining stumps may be left provided they do not extend more than 6" above the ground surface.

### 3.3. ISOLATED TREES

3.3.1. Isolated trees and stumps designed to be removed shall be cut and their stumps as well as any other designated stump shall be removed by excavation, grinding or other mechanical means.

3.3.2. Brush, shrubs or other vegetation designated to be removed shall be cut at ground level and disposed as indicated elsewhere in this specification.

3.4. DISPOSAL OF CLEARED AND GRUBBED MATERIALS, ISOLATED TREES, STUMPS AND OTHER VEGETATION

3.4.1. The Contractor shall dispose of the trees, brush, shrubs and other perishable material by any of the following methods:

3.4.1.1. The Contractor may sell or salvage all merchantable timber from clearing and grubbing operations.

3.4.1.2. The Contractor may chip trees on the site, for use as directed by Engineer; all surplus chips shall become the property of the Contractor.

- 3.4.1.3. All trees and brush to be cleared shall become the property of the Contractor. The satisfactory disposal of this material off the site will be the Contractor's responsibility. Disposal must be in accordance to applicable federal, state and local community requirements.
- 3.4.2. No burning of trees, brush, shrubs or perishable material will be allowed on project site. The Contractor will not be allowed to haul trees, brush, shrubs or perishable material from the project for the purpose of burning.
- 3.4.3. Stumps, roots and perishable materials shall be removed from the project site prior to earthwork operations.

### 3.5. DISPOSAL OF OTHER MATERIALS

- 3.5.1. The disposal of other materials designed or needed to be removed in order to complete the designated construction will be the responsibility of the Contractor in accordance with all local, state and federal requirements.

- 3.5.2. Voids from the removal of sign posts, foundations, fence posts, bollards, or other objects designated to be removed will be filled with material and compaction meeting the requirements of Division-2 Section "Earthwork".

### 3.6. STRIPPING

- 3.6.1. The Contractor shall remove to the extent ordered and satisfactorily, transport and store all suitable topsoil for use as loam.
- 3.6.2. Storage area shall be on site. If no storage areas are indicated on plans or available on-site, then Contractor shall make provisions to store topsoil elsewhere for use of the project. Engineer's approval of storage areas required.
- 3.6.3. All stripped topsoil shall remain the property of the Owner (unless otherwise stipulated in writing) and no material shall be hauled off-site until Engineer is notified. Failure of the Contractor to notify the Engineer prior to hauling any topsoil off-site shall result in forfeiture of payment for this work.
- 3.6.4. Stripped topsoil shall be obtained from open fields or grassed areas containing organic material suitable for loaming operations. The depth of stripping shall vary based on subsurface information provided elsewhere in these specifications and actual site conditions. In any event, soils shall be removed to the minimum depth of topsoil. Mixing of subsoils shall be accepted. The depth of soil removal shall be verified in the field. All stripped topsoil shall be screened and tested for suitability for use under lawns and adjusted as required.
- 3.6.5. Any stripped topsoil not required for this project shall remain the property of the Owner unless Contractor is directed to remove surplus topsoil from site, which he shall do at no additional expense to the Owner.

### 3.7. UNSUITABLE MATERIAL

- 3.7.1. Excavated unsuitable material shall be separated and classified as unsuitable material, unsuitable non-hazardous material (sludge) and unsuitable hazardous material.

### 3.8. TREE AND SHRUB PROTECTION DEVICES

#### 3.8.1. TREE PROTECTION DEVICES

- 3.8.1.1. This work shall consist of applying wood framing around the trunk or trunks of the tree from the ground level to a height of 6 feet.
- 3.8.1.2. The wood framing shall be placed around the trunk in sufficient quantity to protect the trunk from mechanical damage. The binding material shall be tight enough to prevent the wood from being moved. None of the

binding materials shall come in contact with the trunk or any portion of the tree. In no instance shall nails or any other type of fastener enter the tree. The wood framing shall be removed when all mechanical work within the surrounding area has been completed.

### 3.8.2. SHRUB PROTECTION DEVICES

3.8.2.1. This work shall consist of the furnishing and installation of standard snow fence around the shrub or grouping of shrubs designated to be protected as indicated on the plan details or as directed by the Engineer.

3.8.2.2. All installations will include reflective tape on the guy wires or ropes as warning devices for vehicular or pedestrian traffic. Each guy wire or rope is to be marked with a minimum of two 12" long by 1" wide strips of reflective tape.

3.8.2.3. Upon completion of construction, with the approval of the Engineer protective devices are to be dismantled and removed from the site.

**END OF DOCUMENT**



## EROSION AND SEDIMENTATION CONTROLS

## 1. PART 1 - GENERAL

### 1.1. RELATED DOCUMENTS:

- 1.1.1. Drawings and General Provisions of Contract, including General Conditions and Supplementary Conditions Specification sections, apply to work of this section.
- 1.1.2. Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction, amended August 2013 with latest addenda.

### 1.1.3. RELATED SECTIONS

31 00 00	Earthwork
31 10 00	Site Preparation

## 1.2. DESCRIPTION OF WORK:

- 1.2.1. Furnish and install temporary control measures as shown on the plan or as needed during the progress of the work or as ordered by the Engineer during the life of the contract to control water pollution through use of mulches, grasses, netting, fiber mats, silt fences, brush and baled hay checks, and sand bags and filter fabrics and other erosion control devices and methods.
- 1.2.2. The Contractor shall attend a pre-construction meeting to discuss in detail his intended construction sequence and accompanying soil erosion and sediment control program.
- 1.2.3. The Contractor is responsible for compliance with the rules and regulations governing the enforcement of the Rhode Island Freshwater Wetlands Act.
- 1.2.4. The temporary pollution control provisions contained herein shall be coordinated with the permanent erosion control by the Contractor who shall submit plans showing the methods of control to be utilized prior to commencing of work depicting the various areas to assure economical, effective and continuous erosion control throughout the construction and post construction period.
- 1.2.5. Plans include specific requirements on erosion and sediment control including requirements of regulatory agencies and limits on area of soil which can be disturbed during any one time period for this project.

## 2. PART 2 - PRODUCTS

### 2.1. MATERIALS:

2.1.1. Mulches: Mulches may be hay, straw, fiber mats, netting, wood cellulose, corn or tobacco stalks, bark, corn cobs, wood chips, or other suitable material and shall be reasonably clean and free of noxious weeds and deleterious materials.

2.1.2. Silt Fence: Silt fence shall be Enviro Fence by Mirafi, Propex Silt Stop manufactured by Amoco Fabrics Company, or equal.

2.1.3. Baled Hay Erosion Check: The baled hay shall be approximately 36"x18"x24".

2.1.4. Grass: Grass shall be a quick growing species suitable to the area providing a temporary cover, which will not later compete with the grasses sown later for permanent cover. Seed mixture is indicated on project plans.

2.1.5. Fertilizer and Soil Conditioners: Standard commercial grade as reviewed by the Engineer.

2.1.6. Stone: 12" to 18" diameter in size.

2.1.7. Excelsior Blanket: The excelsior blanket shall consist of a machine produced mat of curled wood excelsior of 80% six inch or longer fiber length, with consistent thickness and the fiber evenly distributed over the entire area of the blanket. The top side of each blanket shall be covered with a photodegradable extruded plastic mesh. The blanket shall be made smolder resistant without the use of chemical additives. Excelsior blanket shall be furnished in rolls of 48 inches by 180 feet, with a weight of 78 lbs. plus or minus 10%, covering an area of 80 sq. yd. per roll. Staples shall be made of wire, 0.091 inches in diameter or greater, "U" shaped with legs 6 inches in length and a 1 inch crown. Longer staples may be required for loose soils.

2.1.8. Hay and Straw: Hay and straw for mulch shall be mowings of acceptable herbaceous growth reasonably dry. No salt hay shall be used. This mulch shall be used to stabilize slopes and assist in maintaining soil temperature during seed germination. Straw or hay mulch must be anchored immediately after spreading to prevent windblowing. The following methods of anchoring straw or hay may be used:

2.1.8.1. Mulch Anchoring Tool: A tractor-drawn implement designed to punch mulch into the soil surface, limited to use on slopes no steeper than 3' horizontally to 1' vertically. Machinery shall be operated on the contour.

2.1.8.2. Mulch Netting: Install in accordance with manufacturer's recommendations.

2.1.8.3. Liquid Mulch Binders: Application of liquid mulch binders and tackifiers

should be heaviest at edges of areas and at crests of ridges and banks to prevent windblowing. The remainder of the area should have binder applied uniformly. Binders may be applied after mulch is spread or may be sprayed into the mulch as it is being blown onto the soil. Applying straw and binder together is the most effective method,

2.1.8.4. Chemical binders such as petroset, terratack, hydro mulch and aerospray may be used as recommended by the manufacturer to anchor mulch.

2.1.9. Hay Bales: Hay bales shall be mowings of acceptable herbaceous growth reasonably free from noxious weeds or woody stems and shall be reasonably dry. Hay bales shall be approximately 36" long x 18" wide x 24" high. Bales shall be anchored with 2"x2"x3' long wooden stakes.

### 3. PART 3 - EXECUTION

#### 3.1. PREPARATION

3.1.1. The Engineer has the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, the surface area of erodible earth material exposed by excavation, borrow and fill operations and to direct the Contractor to provide immediate permanent or temporary pollution control measures to prevent contamination of adjacent streams or other water courses, lakes, ponds or other areas of water impoundment. Such work may involve the use of temporary mulches, mats, seeding, check dams or other control devices or methods as necessary to control erosion. Cut slopes shall be seeded and mulched as the excavation proceeds, to the extent considered desirable and practicable.

3.1.2. The Contractor will be required to incorporate all permanent erosion control features into the project at the earliest practicable time. Temporary pollution control measures will be used to correct conditions that develop during construction, that were not foreseen during the design stage, that are needed prior to installation of permanent pollution control features, or that are needed temporarily to control erosion that develops during normal construction practices, but are not associated with permanent control features on the project, at no additional cost to the Owner.

3.1.3. Where erosion is likely to be a problem, clearing and grubbing operations should be so scheduled and performed that grading operations and permanent erosion control features can follow immediately thereafter if the project conditions permit; otherwise temporary erosion control measures may be required between successive construction stages. Under no conditions shall the surface area of erodible earth material exposed at one time, by stripping of topsoil, exceed five (5) acres without review by the Engineer.

3.1.4. Contractor shall have on-site all necessary hay bales, silt fence, rip-rap, and storm

drainage piping etc., prior to undertaking any work that may cause erosion.

- 3.1.5. The Engineer will limit the area of excavation, borrow and embankment operations in progress commensurate with the Contractor's capability and progress in keeping the finish grading, mulching, seeding, and other such permanent pollution control measures current. Should seasonal limitations make such coordination unrealistic, temporary erosion control measures shall be taken immediately to the extent feasible, justified and indicated on plans at no additional costs to Owner.
- 3.1.6. If overland water flow becomes a problem in the construction progress then the Contractor shall take it upon himself to construct any and all ditches, temporary roads, fills and pipe culverts as necessary to alleviate a water problem which may affect progress of work. This work shall be performed at no additional expense to the Owner.
- 3.1.7. Under no circumstances shall the amount of surface area of erodable earth material exposed at one time by excavation, borrow or fill within the right of-way exceed five (5) acres without prior review by the Engineer.
- 3.1.8. The Engineer may increase or decrease the amount of surface area of erodable earth material to be exposed at one time by clearing and grubbing, excavation, borrow and fill operations as determined by his analysis of project conditions.
- 3.1.9. In the event of conflict between these requirements and pollution control laws, rules and regulations of the federal, state or local agencies, the more restrictive laws, rules, or regulations shall apply.
- 3.1.10. Excelsior Blanket:
  - 3.1.10.1. Contractor shall furnish, place, secure and maintain excelsior blanket over seeded areas in indicated on the plans or directed by the Engineer if so specified on the project plans. The area to be covered shall be properly prepared, fertilized and seeded before the blanket is applied. When the blanket is unrolled, the netting shall be on top and the fibers shall be in contact with the soil over the entire area. In ditches, the blankets shall be applied in the direction of the flow of water, butted snugly at ends and sides, and then stapled. On slopes, the blankets shall be applied either horizontally or vertically to the slope. Ends and sides shall be butted snugly and stapled.
  - 3.1.10.2. The blanket shall be held in place by means of staples driven vertically into the soil. Staples shall be spaced approximately two lineal yards apart, on each side, and one row in the center alternately spaced between each side (60 staples for each blanket). Use a common row of staples on adjoining blankets. In areas of high water velocity, as determined by the Engineer, staples shall be installed on two foot centers.

3.1.10.3. The Contractor shall maintain the excelsior blanketed areas until all work on the entire contract has been completed and accepted. Maintenance shall consist of the repair of areas damaged by erosion, wind, fire or other causes. Such areas shall be repaired to reestablish the condition and grade of the soil prior to application of the matting and shall be refertilized and reseeded as specified.

3.1.11. Silt Fence:

3.1.11.1. Unless directed otherwise, silt fences shall be placed as indicated on project plans or as directed by the Engineer.

3.1.11.2. Installation shall be per plan details.

3.1.12. INSTALLATION LOCATION OF BALED HAY AND SILT FENCES:

3.1.12.1. Hay Bales:

3.1.12.1.1. Contractor shall furnish, place, secure (with stakes) and maintain hay bales at locations indicated on the plans or directed by the Engineer.

3.1.12.1.2. Hay bales shall remain and be maintained by the Contractor until directed to be removed by the Engineer.

3.1.12.2. Silt Fence:

3.1.12.2.1. Unless directed otherwise, silt fences shall be placed at the locations indicated on the plans.

3.2. CONSTRUCTION ENTRANCES

3.2.1. Stabilized construction entrances shall be installed at all points of access to reduce or eliminate tracking or flowing of sediment onto the town road in accordance with the following criteria:

3.2.1.1. Provide 1 to 2-1/2 inch crushed stone, min. 8" thick.

3.2.1.2. Construction entrance shall be as wide as or wider than all points of ingress and egress.

3.3. SPECIAL INSTRUCTIONS:

3.3.1. Silt fence shall be inspected during storm events, after each rainfall of one-inch magnitude or greater, prior to weekends, and prior to any forecasted storm events. The Contractor shall submit weekly inspection reports to the Engineer.

- 3.3.2. In the event that temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled, and are ordered by the Engineer, such work shall be performed by the Contractor at his own expense.
- 3.3.3. It is also the Contractor's responsibility to maintain the placement of hay bales, silt fences and other erosion control devices remove silt from ditches and culverts and to repair any erosion of ditches and slopes.
- 3.3.4. In case of repeated failures on the part of the Contractor to control erosion, pollution, and/or siltation, the Engineer reserves the right to employ outside assistance or to use his own forces to provide the necessary corrective measures. Such incurred direct cost plus project engineering costs will be charges to the Contractor and appropriate deductions made from the Contractor's monthly progress payment.
- 3.3.5. Any erosion, siltation or general damage resulting from neglect by the Contractor to undertake temporary and permanent erosion control measures as required or directed shall result in the responsibility of the Contractor to correct the areas as determined by the Engineer.
- 3.3.6. Contractor shall also be required to install and maintain temporary erosion control measures within a time frame agreeable to the Engineer.
- 3.3.7. Temporary pollution control may include construction work outside the project limits where such work is necessary as a result of utility installations and equipment storage sites,
- 3.3.8. The erosion control features installed by the Contractor shall be acceptable maintained by the Contractor.
- 3.3.9. When a reasonable ground cover has been established, with the approval of the Engineer, the Contractor will remove all temporary erosion control measures, and the Contractor shall regrade and seed the area from which these measures were removed. Grading and seeding will be by hand if access for mechanical equipment is not possible.

**END OF DOCUMENT**

## EARTHWORK UTILITIES

### 2. PART 1 – GENERAL

#### 2.1. RELATED DOCUMENTS

2.1.1. Drawings and General Provisions of the Contract, including General and Specification Supplementary Conditions apply to the work of this Section.

2.1.2. Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction, amended August 2013 with latest addenda applies to this Section

#### 2.2. DIVISION RELATED SECTIONS

31 00 00	Earthwork
31 10 00	Site Preparation
33 40 00	Storm Drainage Utilities

#### 2.3. DESCRIPTION OF WORK

2.3.1. Work under this section includes, but is not necessarily limited to, the following:

2.3.1.1.Excavating and trenching.

2.3.1.2.Street opening permits with police details.

2.3.1.3.Filling, backfilling and compaction.

2.3.1.4.Rough grading to required tolerances.

2.3.1.5.Filling, as directed.

2.3.1.6.The placing of earth for forming and shaping embankments.

2.3.1.7.Maintaining bench marks, monuments, and other reference points, obtaining accurate replacement of final grade of any disturbed or destroyed, or that must be removed due to the nature of the work, furnishing certification by a Registered Professional Surveyor that all disturbed items have been accurately relocated.

2.3.1.8.Written notice of readiness of excavations, fill materials, fill areas, compacted fills, and items requiring review and/or inspection.

2.3.1.9.Maintaining excavations and trenches free of water, and performing construction work under dry conditions.

2.3.1.10. Excavations, stock piling and placing material suitable for filling and backfilling.

2.3.1.11. Removing from site all debris, unsuitable material and excess excavated material as specified and/pr as directed by the Engineer.

2.3.1.12. Restoration to original grades and condition properties damaged by any activity related to the work, taking adequate precautions to avoid settlement or cave-in of properties higher than site, silting, erosion, or other damage to properties lower than site.

## 2.4. QUALITY ASSURANCE

2.4.1. If, in the opinion of the Engineer, the specified materials do not conform to material specifications any required sieve analysis as deemed necessary by the Engineer shall be performed by an independent testing laboratory selected by the Engineer. The Contractor, at no expense to the Owner, shall pay for this testing.

## 3. MATERIALS

### 3.1. GENERAL REQUIREMENTS

3.1.1. Grain-size distribution curve shall be furnished to the Engineer by a soil test lab Engineer.

3.1.2. Areas from which fill material is obtained shall have been completely stripped of topsoil to undisturbed naturally deposited inorganic soil. No fill shall be brought to site or purchased until such material shall have been reviewed by the Engineer. Fill shall conform in quality to sample as selected by the Engineer.

### 3.2. FILL

3.2.1. Fill materials shall be reviewed, and shall conform to the following unless specifically indicated otherwise:

3.2.1.1. Fill, unless otherwise specified, shall be earth free of debris, cinders, combustibles, frost, ice, roots, sod, wood, cellulose, and organic materials. Up to 30 percent of fill material may be rock-like materials not to exceed 0.5 cubic foot in volume, nor more than 6" in greatest dimension, evenly distributed in total fill.

### 3.3. SELECTED BACKFILL

3.3.1. Selected backfill shall be excavated materials, free-draining, clean, granular soil



suitable for backfill. It shall not be frozen and shall be free from peat, vegetable or organic matter and any other debris, and shall be readily compactable.

#### 3.4. GRAVEL BORROW

3.4.1. Gravel borrow shall be of a granular nature, the major portion of which may be sand, gravel and other stone. It shall not be frozen and shall be free from peat, vegetable or organic matter and any other debris and shall be readily compactable. State of Rhode Island Highway Standards and Specifications Material Section M.01.02 gradation requirements will be followed.

<u>SIEVE SIZE</u>	<u>PERCENT FINER BY WEIGHT</u>
3"	100
1/2"	50-85
3/8"	45-80
No. 4	40-75
No. 40	0-45
No. 200	0-10

#### 3.5. SAND BLANKET

3.5.1. Sand blanket shall be clean and sand free from ice, snow, roots, sod, rubbish and other deleterious or organic matter. Sand blanket shall conform to the following gradation requirements:

<u>SIEVE SIZE</u>	<u>PERCENT FINER BY WEIGHT</u>
1/2"	100
3/8"	85-100
No. 4	60-85
No. 16	35-60
No. 50	10-35
No. 100	2-5

#### 3.6. FIRST CLASS BEDDING

3.6.1. First class bedding shall be crushed stone consisting of durable crushed rock or durable crushed gravel stone, free from ice, snow, sand, clay, loam or other deleterious material. The first class bedding shall be uniformly blended and shall conform to the State of Rhode Island Highway Standards and Specifications Material Section M.01.04 requirements:

<u>SIEVE SIZE</u>	<u>PERCENT FINER BY WEIGHT</u>
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1-1/2"	100
1/2"	50-85
3/8"	45-80
No. 4	0-5

#### 4. EXECUTION

##### 4.1. GENERAL EXCAVATION REQUIREMENTS

- 4.1.1. The extent of excavation open at any onetime shall be controlled by the conditions, but shall always be confined to the limits prescribed by the Engineer.
- 4.1.2. At least one lane of traffic shall be open at all times. The Contractor shall take the necessary care in the placement of excavated materials so as not to block the passage of vehicles.
- 4.1.3. No excavated material shall be places on lawns, driveways or other private property without written consent of Owner.
- 4.1.4. The Contractor shall take all necessary measures to protect trees not to be removed from the site of the work against damage from machinery and from excavated material. Branches and roots shall not be cut unless permitted by the Engineer.
- 4.1.5. Trees, cultivated plants, shrubs and hedges that might be damaged by the Contractor's operations shall be protected or shall be transplanted, cared for and replanted. If such trees, plants, shrubs or hedges are damaged to the degree that their growth or beauty is affected, the Contractor at his own expense shall replace them. All surfaces, which have been damaged by the Contractor's operations, shall be restored to a condition at least equal to that in which they were found just prior to the start of construction.
- 4.1.6. The restoration of existing property shall be done as promptly as practicable and not left to the end of construction work.
- 4.1.7. All existing pipes, poles, wires, curbs, property line markers, fences, walls, or other structures, which, in the opinion of the Engineer must be preserved in place without relocation, shall be carefully supported and protected by the Contractor. In the event of damage, the Contractor at his own expense shall restore them to their original condition.
- 4.1.8. As excavation approaches existing utilities or other underground structures, digging with machinery shall cease and the excavation shall be done manually, as directed.
- 4.1.9. Excavation and backfill operations adjacent to existing utilities, structures and

construction shall be done in such a manner as will prevent the loss of ground or caving in on excavations, the undermining, damage or disturbing of existing pipelines, utilities, and structures or any completed construction of the project. Backfill shall be placed, compacted, and done in such a manner as to prevent future settlement and damage to the existing pipelines, utilities, structures, or construction. Existing pipelines, utilities, structures, new construction, or property damaged due to excavation, backfilling and settlement of new backfill, shall be the responsibility of the Contractor and shall be corrected in a manner satisfactory to the Engineer, at no additional expense to the Owner.

- 4.1.10. Unsuitable excavated material shall systematically be separated and removed from suitable material to the satisfaction of the Engineer.
- 4.1.11. Surplus suitable material shall be the property of the Owner and stored on site as directed, or at the Owner's request the Contractor, at no additional cost to the Owner, shall remove this material from the site to the Owner.
- 4.1.12. Remove obstructions to depth of 6" below new construction, and 8" below subgrade in other areas.
- 4.1.13. Support banks of excavations, as required by local, state and federal regulations, to protect persons and property, using suitable combinations of shoring, sheet piling, bracing or other methods.
- 4.1.14. If excavation goes beyond lines shown in details, Contractor shall replace material with bank run gravel or first class bedding.
- 4.1.15. Excavations shall be carried to design depths.
- 4.1.16. If excavation is carried beyond line or below grade, except as directed, or subgrade is made unsatisfactory by act or neglect of Contractor, he shall remove such unsatisfactory material, No extra payment will be made for replacement with satisfactory fill.
- 4.1.17. Contractor shall provide adequate dust control during earthwork operations.
- 4.1.18. Contractor shall provide and maintain temporary barricades and traffic controls as required.

#### 4.2. PROJECT CONDITIONS

- 4.2.1. "Dig-Safe" Damage Prevention System: All Contractors or Subcontractors performing drilling, boring, auguring, jetting, sheeting or pile installation, demolition, excavation or like work shall, prior to commencement of these activities, contact utility companies having responsibility for underground transmission systems for information relative to locations of existing underground

transmission systems for information relative to locations of existing underground utilities and/or appropriate dig-safe damage prevention and notification agency. Provide Dig-Safe number to Owner in writing prior to start of excavation.

4.2.2. Adequate protection measures shall be provided to protect workmen and pedestrians passing by the site. Streets adjacent property shall be fully protected throughout the operations.

4.2.3. Shoring, sheeting, and bracing and/or prefabricated trenching boxes shall be provided to prevent caving, erosion, or gullyng sides of excavation.

4.2.4. Provide for surface drainage and erosion control during the period of construction in a manner to avoid creating a nuisance to adjacent areas. Keep all excavations free of water during the entire progress of the work, regardless of the cause, source, or nature of the water.

#### 4.3. CUTTING PAVEMENT

4.3.1. Excavations made on pavement shall be made in a careful manner so as to cause the least amount of damage to the pavement. Roadway pavement in state highways, local roads, sidewalks, and easements having Class 1 and Class 2 Bituminous concrete pavement shall be cut prior to trench excavation. Pavement and/or cement concrete will be cut 6 inches either side of the maximum allowable trench width. Any damage to the cut line due to the excavations, backfilling or removal of temporary pavement shall be re-cut to neat lines at no additional cost to the Owner, prior to replacement of the specified finished pavement. The width of pavement removed shall be kept as narrow as practicable. Existing pavement and base course disturbed or damaged beyond the payment lines indicated shall be replaced by the Contractor to match existing pavement and base course, at no additional cost to the Owner.

4.3.2. Contractor shall remove and dispose of existing bituminous concrete pavement off-site as is necessary to perform work of this contract as indicated. Removal of pavement shall be done in a neat manner by saw cutting a neat edge.

4.3.3. Contractor shall saw cut, remove and provide off-site disposal of concrete and bituminous walk pavement as is necessary to perform the work of this contract. Removal of concrete and bituminous walks shall be performed in a neat manner at the nearest joint of the remaining walk pavement.

4.3.4. Excavated pavement shall not be mixed with other excavated material which is to be used as backfill, and shall be removed immediately from the site of the work.

#### 4.4. ROCK EXCAVATION AND DISPOSAL

4.4.1. Rock excavation shall mean removal and disposal of rock material as directed by

the Engineer.

4.4.2. The Contractor shall be solely responsible for an damage, direct or indirect, arising from rock removal operations and shall hold the Owner and the Engineer harmless from any costs, liens, charges, claims, or suits, including the costs of defense arising from such damage, real or alleged. No blasting will be allowed at this project.

4.4.3. All rock removal shall be in conformance with local and state authorities having jurisdiction over this work.

4.4.4. Definition of “Rock Excavation” shall mean:

4.4.4.1. Materials that cannot be removed without systematic drilling and hoe ramming, such as rock material in ledges.

4.4.4.2. Concrete or masonry structures larger than 1 cubic yard in volume, and not less than 13” in least dimension.

4.4.4.3. Reinforced concrete larger than 1 cubic yard in volume.

4.4.4.4. Boulders 1 cubic yard or more in volume, sound rock material in ledges, bedded deposits and unstratified masses, which cannot be removed by normal excavation techniques.

4.4.5. When, during excavation, material is encountered that the Contractor may classify as rock excavation, such material shall be uncovered and the Engineer notified by the Contractor. The Contractor shall not proceed with excavation of this material until the Engineer has classified material as earth excavation or rock excavation. Failure on the part of the Contractor to uncover such material and notify the Engineer will cause forfeiture of the Contractor’s right of claim for payment of rock excavation.

4.4.6. Excavated rock shall be removed from the site or deposited in such areas or locations selected by the Contractor with the approval of the Engineer and the Owner.

4.4.7. Soft or disintegrated rock or hardpan, which can be removed with a hand pick or power, operated excavation machines, or loose or previously blasted rock will not be considered as rock excavation.

4.4.8. Before rock excavation commences, the Contractor shall uncover all ledge to be removed. A registered land surveyor, not employed by the Contractor, shall take elevations. Contractor will pay for surveyor. After completing rock removal, elevations shall be taken again by the surveyor. Amounts of ledge removed shall be within the limits indicated on the drawings and will be agreed to by the Contractor

and Owner.

4.4.9. Contractor shall develop cross sections to show and determine rock quantities or payment purposes. Cross sections shall be reviewed by the Engineer.

4.4.10. Blasting of rock will not be permitted on this project.

4.4.11. Wherever rock is shattered below grade and is unfit for foundations the shattered rock shall be removed and replaced as specified. No extra payment will be made for overbreak or backfill as required.

4.4.12. The Contractor shall familiarize all personnel on the project, the Engineer and the general public with the implemented system.

4.4.13. The Contractor shall be responsible for determining any safety requirement on this particular site so as not to endanger life, property, utility services, any existing or new construction, or any property adjacent to the site.

#### 4.5. TRENCH EXCAVATION

4.5.1. Trenches shall be excavated in such a manner and to such widths as will give suitable space to allow pipes to be laid and joints to be formed and to allow for sheeting and shoring, dewatering and for removing and replacing unsuitable materials. Trenches shall be excavated to lines and grades shown on the drawings and shall include the removal of materials such as clay, pavements, sand, gravel, soft or disintegrated rock, which in the opinion of the Engineer can be removed without blasting or drilling, and boulders less than 1 cubic yard in volume.

3.20.4. Wherever rock is encountered in trench excavation, rock shall be removed by a method acceptable to the Engineer to the lines and grades indicated on the plans, or to a minimum depth of 12 inches beneath the pipe barrel.

3.20.5. Final decision as to suitability of excavated material for use as backfill or fill shall be made by the Engineer. If, in the judgment of the Engineer the excavated material is unsuitable, the Contractor shall import bank run gravel to make up the deficiency.

#### 3.21. TRENCH BACKFILL

3.21.1. Trenches and other excavations shall not be backfilled until all required inspections have been satisfactorily performed and until the work as installed conforms to other requirements specified in the several sections covering the installation of the work. Trenches and other excavations shall be backfilled as soon as practicable with the specified material.

3.21.2. All pipes under this contract are to be laid in "First Class Bedding" as indicated on the contract drawings. Prior to backfilling the trench, the space on the both sides of

the pipe and beneath the pipe shall be backfilling with "First Class Bedding" material. This layer shall be carefully tamped using tools acceptable to the Engineer to obtain maximum compaction around and under the pipe at the same time being extremely careful not to cause movement of the pipe in either a lateral or vertical direction.

3.21.3. For pipe backfill under loam and seed areas, place and compact fill in lifts no thicker than 6" and compact to at least 90% of the maximum laboratory dry density determined in accordance with ASTM D-1557, Method D.

3.21.4. In each trench, bank run gravel, as directed by the Engineer, which does not contain any stones, rock, or clay lumps that are in excess of 3" in their greatest dimension shall be deposited in the trench uniformly on both sides of the pipe and a minimum height of 2" over the pipe for the entire width of the trench above the "First Class Bedding" to the pipe spring line. This layer shall be thoroughly compacted to the above described requirements.

3.21.5. The balance of the backfill to subgrade or finish grade as indicated shall be made using trench excavated materials in seeded areas and bank run gravel under paved, parking lot areas, and under slabs on grade, unless the Contractor is otherwise directed by the Engineer to use bank run gravel, as herein before specified. The material shall be free from frozen material, clods of earth, stones or boulders larger than 6 inches in their greatest dimensions, brush or any other perishable or objectionable matter which would prevent proper consolidation or might cause subsequent settlement. This layer shall be thoroughly compacted to the above described requirements.

3.21.6. Compaction by water-jetting, puddling or ramming is prohibited. Where it is necessary to obtain maximum compaction, power tampers shall be used. The method of compacting shall be reviewed by the Engineer.

3.21.7. During filling and backfilling operation, pipelines will be reviewed by the Engineer to determine whether any displacement of the pipe has occurred. If the inspection of the pipelines shows poor alignment, displaced pipe or any other defects, the defects designated by the Owner shall be remedied in a satisfactory manner, by the Contractor, at no additional expense to the Owner.

3.21.8. Backfill, first class bedding and subgrade under manholes and/or catch basins shall be compacted to conform to at least 95% of the maximum laboratory dry density as determined in accordance with ASTM D-1557, Method D.

3.21.9. Where required by the local community or by the utility company with jurisdiction over a facility, metallic tape, of the type designated by the appropriate authority will be placed as directed in the trench backfill.

3.22. MANHOLE, DROP INLET, CATCH BASIN, INFILTRATION, WATER

## QUALITY AND OUTLET STRUCTURE EXCAVATION

- 3.22.1. Excavations shall be of sufficient size to permit construction of the structures as shown and specified and to allow for sheeting and bracing, pumping and drainage and for removing and replacing unsuitable material as required.
- 3.22.2. Excavation shall include the removal of materials such as clay, pavements, sand, gravel, soft or disintegrated rock, and other materials which in the opinion of the Engineer can be removed without blasting or drilling, and boulders less than 1 cubic yard in volume.
- 3.22.3. The extent of excavation shall be 18 inches wider than the base of the structures, and 6 inches below the base of the structures unless greater dimensions are indicated on the plan details.

### 3.23. MANHOLE, DROP INLET, CATCH BASIN BACKFILL

- 3.23.1. Manholes, drop inlets, catch basins, infiltration, water quality and outlet structures excavations shall not be backfilled until all required inspections have been satisfactorily performed and until the work as installed conforms to other requirements specified in the several sections covering the installation of the work.
- 3.23.2. All manholes, drop inlets, catch basins, infiltration, water quality and outlet structures shall be laid on a 6-inch layer of "First Class Bedding" or other bedding materials as indicated in plan details. This layer shall be carefully tamped using acceptable methods and tools to obtain maximum compaction under the structures. The layer of bedding method shall extend to the excavation limits.
- 3.23.3. The balance of the backfill, to subgrade or finish grade as indicated, shall be made using acceptable trench excavated materials in seeded areas, and bank run gravel under paved and parking lot areas and slabs on grade or other materials, as herein before specified or indicated on plan details. The backfill shall be spread in layers not exceeding 6 inches, each layer shall be dampened, thoroughly compacted by tamping or other method and shall contain no rock, stones or boulders larger than 6-inches in their greatest dimensions. The material shall be free from frozen material, clods of earth, brush or any other perishable or objectionable matter which would prevent proper consolidation or might cause subsequent settlement.
- 3.23.4. Bedding and backfill material shall be compacted to the requirements described in "Trench Backfill" above or for infiltration structure as indicated on plan details.
- 3.23.5. Compaction by water-jetting, puddling or ramming is prohibited. The method of compacting shall be reviewed by the Engineer.

### 3.24. STRUCTURE EXCAVATION



- 3.24.1. The Contractor shall furnish, put in place, maintain and remove, as required and/or necessary for safe and proper construction, all excavation support systems which may be required to support the sides of excavation preventing damage to adjacent property and structures.
- 3.24.2. The Contractor shall submit, for review by the Engineer, design and erection drawings, details, material specifications, and design computations for excavation support systems as required; bearing the seal of a Professional Engineer who is experienced in this type of work and is registered in the State of Rhode Island.
- 3.24.3. The excavation support system shall be designed to be compatible with dewatering and pumping systems.
- 3.24.4. Work shall not proceed until such time as the Contractor's submission has been reviewed and questions relative to his proposed method resolved to the satisfaction of the Engineer.
- 3.24.5. Support system shall be installed to prevent any movement of earth which could in any way diminish the width of excavation, or cause caving or undermining of structures or pavement beyond that necessary for proper construction or otherwise injure the work or workmen, and to prevent delay of the work.
- 3.24.6. Support system shall be installed in such a manner to avoid loss of material from behind the sheeting. Care shall be taken not to trim beyond the face of which the sheeting will be driven. Care shall be taken to prevent voids behind the sheeting. If such voids do occur they shall immediately be filled with bank run gravel and compacted.
- 3.24.7. The Contractor shall leave in place, to be imbedded in the backfill, all sheeting and bracing which the Engineer directs in writing to be left in place. The Engineer shall direct at what elevation the sheeting to be left in place shall be cut off.
- 3.24.8. All sheeting and bracing which is to be removed shall be removed in such a manner as not to endanger the construction or other structures. All voids left by the removal of sheeting shall immediately be filled with bank run gravel and compacted with suitable tools to the satisfaction of the Engineer.
- 3.24.9. All sheeting and bracing, together with the use of prefabricated steel trenching boxes, shall be provided by the Contractor at no additional expense to the Owner.
- 3.24.10. The Contractor shall be responsible for the adequacy of his excavation support system and shall be solely responsible for any damage or injury to new or completed work as a result of failure of or lack of use of shoring, sheeting and bracing.

3.25. BACKFILL AND COMPACTED FILL

- 3.25.1. Fill, backfill and compact fills as necessary to complete the work with hand and/or suitable power equipment.
- 3.25.2. No fill material shall be placed on frozen soil, nor shall snow, ice, or frozen earth be brought in as fill. Fill material shall not be placed on material which has been affected by frost moisture.
- 3.25.3. Surface of backfill or fill in reach being constructed shall be maintained approximately level.
- 3.25.4. Acceptable on-site material and/or off-site borrow, shall be placed in successive, even, horizontal layers to a depth no greater than 6" loose measure. Stones larger than 3" shall be removed prior to compaction of each lift.
- 3.25.5. After each layer of backfill or fill has been spread, cleared of large stones and inspected, lift shall be compacted by not less than 4 complete coverages with specifies roller, to 95 percent maximum dry density specified, as determined by laboratory tests in accordance with ASTM D 698-66, and field tests in accordance with ASTM 1556-64.
- 3.25.6. Backfill or fill around pipes within building using hand tools to a point of 12" above pipe. Compact remainder of such backfill or fills using small tools such as power-driven tampers and vibrators, to suit fill materials.
- 3.25.7. Keep power-driven, rider-operated spreading, compacting and other heavy equipment away from walls, a minimum distance equal to height of fill above footings.
- 3.25.8. Where backfill or fill is placed around, or on, two sides of any structure, carry it up evenly. Avoid displacement or other damage to such structure.
- 3.25.9. Work shall be done in a manner that damage to construction, particularly damp proofing or waterproofing and other protective covering is avoided. Should damage occur, stop work in that area, repair damage, and request review of repairs before resuming work in this area.
- 3.25.10. Refer to EARTHWORK 31 00 00 for compaction requirements when work is conducted with in the porous paved areas.

### 3.26. COMPACTION EQUIPMENT

- 3.26.1. Rubber-tired roller-compactor, having 4 wheels equipped with pneumatic tires of such size and ply as can be maintained at pressures between 80 and 100 psi with 25,000 lb. wheel load during rolling operation. Roller-wheels shall be located abreast, and so designed that each wheel will carry approximately equal load in

traversing over even ground. Spacing of wheels shall be such that distance between nearest edges of adjacent tires will not be greater than one-half width of one tire at operating pressure for 25,000 lb. wheel load. Roller shall have body suitable for ballast loading such that load per wheel may be varied, if so directed, between 10,000 lb. and 25,000 lb. Roller shall be towed at speeds not exceeding 10 miles per hour.

3.26.2. Acceptable drum type vibratory compactor operating at not less than 2,000 vibrations per minute.

3.26.3. In any event, regardless of equipment used, compaction of soil shall meet the relative densities stated in this section.

**END OF DOCUMENT**

## BITUMINOUS PAVING

### 1. PART 1 - GENERAL

#### 1.1. RELATED DOCUMENTS

1.1.1. Drawings and General Provisions of Contract, including General and Supplementary Conditions Section, apply to work of this section.

1.1.2. Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction, amended August 2013 with latest addenda applies to this Section.

#### 1.1.3. RELATED SECTIONS

31 00 00 Earthwork

#### 1.2. DESCRIPTION OF WORK

1.2.1. Perform all work necessary and required for the construction of the project as indicated for new roads, temporary pavement and replacement and replacement of temporary pavement. Work under this section includes, but is not necessarily limited to, the following:

- 1.2.1.1. Gravel borrow base course.
- 1.2.1.2. Processed gravel.
- 1.2.1.3. Subbase course.
- 1.2.1.4. Asphalt-aggregate, central-plant, hot-mix, bituminous pavement.
- 1.2.1.5. Asphalt emulsion tack coat.
- 1.2.1.6. Cutting and patching existing roads.
- 1.2.1.7. All sheeting and shoring where required and/or necessary.
- 1.2.1.8. Tack Coat

1.2.2. The Contractor shall furnish all labor, materials, tools, and equipment necessary and shall construct all temporary and permanent pavement on paved areas affected or damaged by his operations, whether inside or outside the normal trench limits, as indicated on the drawings and as herein specified.

1.2.3. Temporary pavement shall be placed over all trenches in paved areas where directed by the Engineer.

1.2.4. All pavement thickness specified herein shall be of the thickness required after compaction.

#### 1.3. ENVIRONMENTAL CONDITIONS

- 1.3.1. Bituminous paving shall not be placed when the ambient temperature is below 50 degrees F, or when there is frost in the base, or any other time when weather conditions are unsuitable for the type of material being placed.

#### 1.4. PROTECTION

- 1.4.1. No vehicular traffic or loads shall be permitted on the newly completed pavement until adequate stability has been attained and the material has cooled sufficiently to prevent distortions or loss of fines. If the climate conditions warrant it, the period of time before opening to traffic may be extended at the discretion of the Engineer.

- 1.4.2. Any damaged pavement resulting from work under this contract shall be repaired by the Contractor at no additional expense to the Owner.

### 2. PART 2 - PRODUCTS

#### 2.1. MATERIALS

- 2.1.1. Materials and methods of placing bituminous pavement shall conform to the requirements of Section 401 of the Rhode Island Standard Specifications.

- 2.1.2. An acceptable, cold-applied, premixed, bituminous mixture may be used for temporary pavements as allowed elsewhere herein.

- 2.1.3. Bitumen for tack coat.

##### 2.1.4. Gravel Borrow Base Course

- 2.1.4.1. Gravel borrow shall meet the gradation requirements of the State of Rhode Island Highway Standards and Specifications Manual Section M.01.02:

<u>SIEVE SIZE</u>	<u>PERCENT FINER BY WEIGHT</u>
3"	100
1/2"	50-85
3/8"	45-80
No. 4	40-75
No. 40	0-45
No. 200	0-10

- 2.1.4.2. Granular fill for subbase under pavement shall meet the following gradation requirements:

<u>SIEVE SIZE</u>	<u>PERCENT FINER BY WEIGHT</u>
3"	100

1-1/2"	70-100
3/4"	50-85
No. 4	30-55
No. 50	8-25
No. 200	2-10

#### 2.1.5. Processed Gravel

2.1.5.1. This material, 3/4 inch Processed Gravel shall meet the follow gradation requirements:

<u>SIEVE SIZE</u>	<u>PERCENT FINER BY WEIGHT</u>
1"	100
3/8"	50-85
No. 4	35-65
No. 10	25-50
No. 40	15-30
No. 200	8-15

## 2.2. BITUMINOUS PAVEMENT MATERIALS

2.2.1. Asphalt – The asphalt material shall conform to the State of Rhode Island Highway Standards and Specifications Materials Section M.03. The amount of asphalt to be mixed with the mineral aggregate shall be between 4-6 percent by weight for binder course and between 5.5-7.0 percent by weight for wearing course. The exact amount of asphalt to be mixed with the mineral aggregate shall be such that a hard, unyielding paving will be the result.

2.2.2. Mineral Aggregate – Coarse and fine mineral aggregate shall consist of broken stone, crushed gravel, natural material having sufficient roughness when combined within the specified limits of grading, or a mixture thereof. If gravel is used, not less than 15 percent nor more than 30 percent limestone screenings by weight shall be added to the gravel as a separate ingredient so as to meet the gradation limits. If crushed stone is used, not less than 15 percent, nor more than 30 percent sand by weight shall be assed to the crushed stone as a separate ingredient to meet the gradation limits. The material shall be tough, durable, and sound, and shall be free from organic matter and other deleterious substances, an shall conform to Section M.03 of the State of Rhode Island Highway Standards and Specifications Material Section:

### Surface Course

<u>SIEVE SIZE</u>	<u>PERCENT FINER BY WEIGHT</u>	
	Type I-1	Type I-2
3/4"	100	
1/2"	80-100	100
3/8"	70-90	95-100
No. 4	50-70	55-75
No. 8	35-50	40-55
No. 30	18-29	20-30
No. 50	13-23	10-20
No.200	3-8	3-8

### Base Course

<u>SIEVE SIZE</u>	<u>PERCENT FINER BY WEIGHT</u>
1"	100
3/4"	90-100
3/8"	40-65
No. 8	25-40
No. 50	8-17
No.200	2-6

2.2.3. As a further requirement, aggregate shall not vary from the specified gradation by more than the following tolerances:

- 2.2.3.1. Passing No. 4 and larger sieves – plus or minus 7.0 percent.
- 2.2.3.2. Passing No. 8 to No. 100 sieves – plus or minus 4.0 percent.
- 2.2.3.3. Passing No. 200 sieve – plus or minus 2.0 percent
- 2.2.3.4. Asphalt Content – plus or minus 0.3 percent.
- 2.2.3.5. Temperature of Mixture – plus or minus 20° F.

### 2.2.4. Tack Coat

Bituminous material for tack coat shall be emulsified asphalt, grade RS-1. The material shall conform to the requirements of AASHTO M 140.

## 2.3. MIXING

Bituminous pavement material, of the type specified, shall be mixed at a central mixing plant by either batch mixing or continuous mixing, as required by the State of Rhode Island Highway Standards and Specifications Material Section.

### 3. PART 3 - EXECUTION

#### 3.1. REMOVE AND DISPOSE OF EXISTING PAVEMENT

3.1.1. Existing bituminous pavement shall be removed to limits indicated on plans. All edges shall be saw cut to a smooth line.

3.1.2. The Contractor shall remove and acceptably dispose of all surplus and unsuitable material.

#### 3.2. GRAVEL BASE COURSE

3.2.1. Gravel base shall be of thickness indicated on plans.

#### 3.3. PROCESSED GRAVEL

3.3.1. Processed gravel shall be of the thickness indicated on plans.

#### 3.4. BITUMINOUS BINDER/BASE

3.4.1. Bituminous binder or base shall consist of 2 inches of Class I Binder Course of bituminous concrete in accordance with Subsection M.03.01 of the Rhode Island Standard Specifications.

3.4.2. Reclaimed base course under roadway binder shall not be less than 6-inches thick.

#### 3.5. SURFACE PREPARATION

3.5.1. Immediately before applying bituminous base or binder course, the area to be surfaced shall be cleaned of all loose material. Base and binder course shall not be applied until base course preparation has been completed, and only so far in advance of placing the surfacing as may be permitted by the Engineer.

##### 3.5.2. Spreading

3.5.2.1. The surface shall be clean of all dirt, packed soil, or any other foreign material, and shall be dry when spreading the bituminous mixture. The mixture shall be placed by mechanical spreader in courses and to the amount required to obtain the compacted thickness and cross section shown on the design drawings. The mixture shall be spread without disturbing the base course and struck off so that the surface is smooth and true to cross section, free from all irregularities, and of uniform density throughout. Care shall be used in handling the mixture to avoid segregation. Areas of segregated mixture shall be removed and replaced with suitable mixture.



3.5.2.2. Spreading by hand methods will be permitted only for particular locations in the work, which because of irregular shape, inaccessibility or other unavoidable obstacles do not allow mechanical spreading or finishing.

3.5.2.3. Pavement shall be placed so that the entire roadway or paved area shall have a true and uniform surface, and the pavement shall conform to the proper grade and cross section with a smooth transition to existing pavement.

### 3.5.3. Initial Rolling

3.5.3.1. The initial rolling shall consist of one complete coverage of asphalt mixtures and shall be performed with 3 wheel rollers or 2 wheel rollers. Such rollers shall weigh not less than 12 tons. Rolling shall commence at the lower edge and shall progress toward the highest portion. Under no circumstances shall the center be rolled first. Rolling shall be performed with the drive wheel of the tandem roller forward with respect to the direction of spreading operation, unless otherwise permitted.

### 3.5.4. Intermediate Rolling

3.5.4.1. The initial rolling shall be followed by additional rolling consisting of three complete coverages with an oscillating type pneumatic-tired roller developing at least 80 psi contact pressure while the temperature of the mixture is at, or above, 150 degrees F.

### 3.5.5. Final Rolling

3.5.5.1. The final rolling of the uppermost layer of asphalt concrete shall be performed with either 2 of 3 wheel tandem rollers weighing not less than 10 tons. Rollers shall be operated at a speed of not more than 3 miles per hour and in a manner that will avoid cracking, pushing, or displacing the mixtures during the compacting period. Rolling shall be continued until further compaction is obtained. All compacted mixtures shall have a density of not less than 95 percent of that obtained by a laboratory compaction of an identical mixture. The use of any equipment that leaves ridges, indentations, or other objectionable marks in the asphalt concrete shall be discontinued.

### 3.5.6. Finish Surface

3.5.6.1. The complete surfacing shall be thoroughly compacted, smooth, and true to grade and cross section, and free from ruts, humps, depressions, or irregularities. When a straightedge 10 feet long laid on the finished surface and parallel with the centerline of the road, the surface shall not vary more than 3/16 of an inch from the lower edge of the straightedge. Any ridges, indentations or other objectionable marks left in the surface of the asphalt concrete by blading or other equipment shall be eliminated either by rolling or

other means.

### 3.6. SPECIAL INSTRUCTIONS

- 3.6.1. In addition to the requirements of this specification, roadway paving shall conform to all state and local regulations and specifications. The more stringent of the regulations shall be applicable.
- 3.6.2. All manhole covers, catch basin grates, valve and meter boxes, curbs, walks, and walls shall be adequately protected and left in a clean condition. Where required, the grades of manhole covers, catch basin grates, valve boxes, and other similar items shall be adjusted to conform to the finished pavement grade. The costs are included in the bituminous paving operation.

**END OF DOCUMENT**

## LOAM AND SEED

### 1. PART 1 – GENERAL

#### 1.1. RELATED SECTIONS

31 00 00 – Earthwork

#### 1.2. QUALITY ASSURANCE

1.2.1. Subcontract seeding work to a firm specializing in such work unless Contractor is fully experienced and qualified.

1.2.2. Each seed bag or container shall display a label which identifies the contents as a true representation of the seed mix and percentages required by specification. No seed shall be applied to a site until the Owner's representative has determined the mixture meets all requirements.

1.2.3. Do not make substitutions without written approval. If specified seed mixes are not available, obtain approval for substitution from the Owner's representative.

#### 1.3. SUBMITTALS

1.3.1. In accordance with Document 01 33 00 submit the following:

1.3.1.1. Certifications and/or labels of proposed seed mixtures stating common and scientific names of grasses, percentages by weight, and percentages of purity and germination.

1.3.1.2. Submit test samples of loam or borrow material being used.

1.3.1.3. Product information for all proposed weed control chemicals.

#### 1.4. DELIVERY, STORAGE AND HANDLING

##### 1.4.1. Fertilizer

1.4.1.1. Delivered mixed as specified in standard size, unopened containers showing weight, analysis, and name of manufacturer.

1.4.1.2. Store in weatherproof place.

#### 1.4.2. Seed

1.4.2.1. Protect all products from weather or other damaging or deteriorating conditions.

1.4.2.2. Seed mixes which have been damaged or have deteriorated in transit or storage are not acceptable.

#### 1.5. WARRANTY

1.5.1. Maintenance of seeding to be performed by installer includes:

1.5.1.1. Watering.

1.5.1.2. Regrading and replanting eroded areas.

1.5.1.3. Seeding or patching sparse or bare areas.

1.5.2. Maintain seeded areas immediately after placement until grass is accepted.

### 2. PART 2 – PRODUCTS

#### 2.1. LOAM

2.1.1. Fertile, natural topsoil, typical of locality, without admixture of subsoil, refuse or other foreign materials, and obtained from well-drained arable site. Mixture of sand, silt and clay particles in equal proportions. Free of stumps, roots, heavy or stiff clay, stones large than 1 inch in diameter, lumps, coarse sand, noxious weeds, sticks, brush or other deleterious matter.

2.1.2. Not less than 4 percent nor more than 20 percent organic matter as determined by loss on ignition of oven-dried samples.

2.1.3. Loam test samples dried to constant weight at temperature of 230° F, plus or minus nine degrees.

2.1.4. Use loam, having prior vegetative growth that did not contain toxic amounts of either acid or alkaline elements.

2.1.5. Approved suitable material from excavation within the project limits shall be used before new material is furnished.

#### 2.2. LIME, FERTILIZER AND SEED

2.2.1. Ground agricultural limestone containing not less than 85 percent of total carbonates.

2.2.2. Complete fertilizer, at least 50 percent of nitrogen derived from natural organic sources of urea form and containing following percentages by weight:

2.2.2.1. Nitrogen 10%

2.2.2.2. Phosphorus 10%

2.2.2.3. Potash 10%

2.2.3. Pure, live, fresh seed from commercial sources meeting and, labeled in accordance with State and Federal laws, rules and regulations. All seed to have a minimum germination rate of 85 percent.

2.2.3.1. Seeding mixture for lawn areas shall conform to the following grass types and percentages

<b>Name</b>	<b>Minimum Proportion by Weight</b>	<b>Percent Purity</b>	<b>Percent Germination</b>
Palmer Perennial Ryegrass	20%	99%	90%
Ranger Perennial Ryegrass	20%	99%	90%
Baron Kentucky Bluegrass	30%	95%	85%
Merion Kentucky Bluegrass	30%	95%	85%

Inert Materials 2.5% (maximum)

## 2.3. WEED CONTROL

2.3.1. Post-emergent weed control for seeding: apply "Trimec," or approved equal. Use of material must be approved prior to application.

## 2.4. WATER

2.4.1. Clean, fresh potable water.

## 3. PART 3 – EXECUTION

### 3.1. GENERAL

3.1.1. Supply suitable quantities of water, hose and appurtenances.

### 3.2. LOAM

- 3.2.1. Spread loam on areas to a minimum depth of 4", or as indicated on the plans or as directed by the Engineer, fine grade and compact.

### 3.3. LIME, FERTILIZER AND SEEDING

- 3.3.1. Apply lime by mechanical means at rate of 3,000 pounds per acre.
- 3.3.2. Apply fertilizer at rate of pounds per acre.
- 3.3.3. Remove weeds or replace loam and reestablish finish grades, if any delays in seeding lawn areas and weeds grow on surface or loam is washed out prior to sowing seed and without additional compensation.
- 3.3.4. The approved seed mixture shall be applied at a rate of 6 pounds per 1,000 square feet by means of seeder device capable of penetrating ground to a depth of 1 inch. Seed machine shall be equipped with disc-type penetrating action and seeder tubes that plant seeds. Seeder shall be similar to Jacobson Model 524-100, 548-100 or equal.
- 3.3.5. Distribute seed over area in two separate passes, each one perpendicular to the other (north-south, east-west orientation). Each pass shall be in a linear progression, and shall conform to the field direction that permits the longest, straight line application procedure.
- 3.3.6. Broadcast seeding will be permitted only with written permission of the Owner. All requests shall be in writing with detailed and itemized procedure to be followed.
- 3.3.7. Water lawn areas adequately at time of sowing and daily thereafter with fine spray, and continue throughout maintenance and protection period.
- 3.3.8. Seed during approximate time periods of March 15 to May 15 and August 15 to October 1, and only when weather and soil conditions are suitable for such work, unless otherwise permitted.

### 3.4. APPLICATION OF WEED CONTROL

- 3.4.1. Apply post-emergent weed control to new seeding areas only.
- 3.4.2. Apply post emergent weed control at 1.2 to 1.5 ounces per 1,000 square feet, or according to manufacturer's recommendations.

### 3.5. ACCEPTANCE OF SEEDING:

3.5.1. Provisional Acceptance: Provisional acceptance period shall be defined as the elapsed time, between application of seed and the establishment of a good, healthy uniform growth of grass.

3.5.1.1. Provisional acceptance will not occur until the seeded areas are well established, exhibiting a vigorous growing condition, devoid of bare spots greater than 1 square foot and have been mown at least twice.

3.5.1.2. It will be the Contractor's responsibility to maintain seeding areas in an approved condition until provisional acceptance.

3.5.1.3. The Contractor shall keep all seeded areas watered and in good condition, reseeding if and when necessary, during the provisional acceptance period.

3.5.1.4. The following guidelines shall be adhered to when mowing all newly seeded areas. These guidelines, while inclusive of all four growing seasons, does not necessarily imply that the Contractor is responsible for mowing throughout all four seasons, as provisional acceptance may be granted if grass is determined to be satisfactory after as few as two complete mowings.

3.5.1.4.1. Initial or spring mowing: Shall take place when lawn areas (new seeding, established lawns,) have grown to a blade height of 2 inches. Turf shall be cut using a mower with sharp cutting blades. Height of cut shall be set at 1-1/2 inches. This height of cut shall be maintained through spring period of growth (April through mid-June). Frequency of mowing during this growth period shall be at every 7 days, or whenever grass growth exceeds 1-1/2 inches. Regardless of how quickly the turf grows during this period, NO MORE THAN ONE-THIRD of the leaf shall be removed in any one mowing. Adherence to this procedure shall require additional and more frequent mowings beyond the established regimen (once every 7 days, etc.), especially during and after rainy periods, or climatic conditions promoting rapid growth.

3.5.1.4.2. Summer: The height of cut shall be raised to 2 to 2-1/2 inches commencing with the start of summer. This height of cut shall be maintained until the return of cooler temperatures in early September. Frequency of mowing during this summer period shall be once every 7 to 10 days. A longer interval than 7 days may be necessary if turf growing rate slows down in response to summer heat, drought, etc.; Contractor shall be responsible for determining the proper cutting interval that conforms best to local growing conditions and climatic factors, but period between cuts shall not exceed 10 days without prior approval of Owner.

3.5.1.4.3. Fall: The height of cut shall be reduced to 1-1/2 inches in mid-September when there is a noticeable change towards cooling daytime temperatures,

usually between September 10 and 20, Beginning on September 10, the frequency of cut shall be set at 1 cut every 7 days; This schedule shall remain in effect until mid-October.

3.5.1.4.4. Late Fall: Between mid-October (October 15) and November 10, the Contractor\_ shall begin to lower the height of cut in incremental stages so that the final cut shall establish the winter dormant height of turf at 1 inch. Mowing frequency during this period shall be set at one cut every 12 to 15 days depending on turf growth rates. Starting on October 15, it is expected that the Contractor shall need no more than 3 cuts to lower the grass to its final height of 1 inch. NO more than one-third of the leaf shall be removed in any one mowing operation. Final cut shall be performed on or prior to November 10, unless an extension date is approved by Owner.

3.5.1.4.5. Grass clippings shall be returned to the turf surface during regular mowing operations.

3.5.1.5. During this period, water turf as necessary, to maintain an adequate supply of moisture within the root zone. An adequate supply of moisture is the equivalent of 1 inch of absorbed water per week that is delivered at weekly intervals in the form of natural rain or is augmented as required by periodic watering.

3.5.1.6. It shall be the Contractor's responsibility to obtain necessary documentation to show that provisional acceptance has been granted. This shall be done upon written request to inspect grass work on site submitted by the contractor to the Engineer. Provisional acceptance will not be granted until contractor has obtained, in writing, a statement from the Engineer indicating that grass is satisfactory under the terms of the provisional acceptance.

3.5.2. Final Acceptance: Final acceptance period shall be defined as the elapsed time between provisional acceptance and final closeout of the project.

3.5.2.1. All seeded areas shall be guaranteed by the Contractor for not less than one growing season from the time of provisional acceptance. Growing season shall be defined as follows:

3.5.2.1.1. If provisional acceptance is received during April, May, June or July, next growing season shall end on October 15.

3.5.2.1.2. If provisional acceptance is received during September, October, November or December, next growing season shall end on June 1.

3.5.2.2. At the end of the guarantee period, inspection will be made by the Engineer upon written request submitted by the Contractor at least 10 days before the anticipated date. Lawn areas not demonstrating satisfactory stands as outlined



above, (except if damaged by vandalism) as determined, by the Engineer shall be renovated, re-seeded, and maintained meeting all requirements as specified herein.

3.5.2.3. After all necessary corrective work has been completed, the Engineer shall certify in writing the final acceptance of the lawn area.

3.5.2.4. Decision of Owner as to necessity to replace lawns or repair any defects on workmanship, or cause of any destruction or loss, impairment or failure to flourish, shall be conclusive and binding upon Contractor. Replacements shall be the same as specified. All replacements shall be planted as specified herein at Contractor's expense.

3.5.2.5. "Vandalism," as noted above, is intended to mean any acts, whether intentional or accidental, by other persons, which clearly result in damage, and which may reasonably be considered to be beyond the Contractor's reasonable control, as determined by the Owner's representative.

3.5.3. Maintain lawn areas and other seed areas at maximum height of 2-1/2 inches by mowing at least three times. Weed thoroughly once and maintained until time of final acceptance. Re-seed and refertilize with original mixtures, watering or whatever is necessary to establish over entire area of lawn and other seeded areas a close stand of grasses specified, and reasonably free of weeds and undesirable coarse native grasses.

### 3.6. TEMPORARY COVER CROP

3.6.1. Sow a temporary cover crop of buckwheat, domestic rye grass or other acceptable seed if there is insufficient time in the planting season to complete seeding, fertilizing, and permanent seeding at the option of Contractor or order of Engineer. Cut and water cover crop as necessary until the beginning of the following planting season, at which time it shall be plowed or harrowed into soil, the areas shall be fertilized and permanent seed crop sown as specified.

**END OF DOCUMENT**